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# Philippine Abstracts

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

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# PHILIPPINE ABSTRACTS

A quarterly classified summary of the latest Philippine publications in the field of science and its applications (UDC 5 and 6)

**Vol. 12, Nos. 1-2** **January - June 1971**


## MATHEMATICS

517.9(043)
Differential equations.

**1. The numerical integration of ordinary differential equations by the predictor-corrector method.** Erna Soria Falloran. Manila, Faculty of the Graduate School, University of Santo Tomas, 1970. 4ℓ. 56p. 2ℓ. 21 refs. (Thesis. Master of Science, Major in Mathematics)

Predictor-corrector formulas for the solution of first order and higher order differential equations were derived. The method is similar in concept and application to the method of Milne although from the point of view of stability, it has an advantage over the latter. With regards to accuracy, the proposed method compares favorably with other methods.

## PHYSICS

534.84:53.083(043)
Sound measuring instruments.

**2. An experimental investigation of the Taylor tube set-up as a measuring instrument for the dynamic modulus of elasticity.** Vicenta J. Cabahug. Cebu City, Faculty of Graduate School, University of San Carlos, April 1970. x, 98p. graphs, tables, diagr. 18 refs. (Thesis. M.S. in Physics)

The set-up used was made up of the Taylor tube, audio-oscillator, loudspeaker, microphone and frequency analyzer. Experiments indicated the possibility of using the set-up as a measure of the dynamic modulus of elasticity. However, refinements are needed as it is limited to samples with diameters similar to the tube and to light materials that are not too thin. A maximum percentage error of 7-14% was obtained.

537.531:535.34:674.03
537.531:535.34:678
X-rays - Absorption.

**3. Transmission of low-energy X-ray through various locally available materials.** E. Lee and J. Terrado (Ateneo de Manila University, Quezon City), R. Petel and N. Bustamante (Health Physics Dept., Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v 2, no. 2, p. 215-222. graphs, tables, illus. 6 refs.

The transmission of low-energy X-ray through plywood, lawanit, pinewood, plastic and styrofoam was determined using the Victoreen Condenser Roentgen Meter. Results showed that the linear attenuation coefficient is dependent on the density of materials. The highest value observed at all energies was in plastic (0.542 $cm^{-1}$ at 50 KV); among the different types of wood used, lawanit had the highest attenuation coefficient (0.492 $cm^{-1}$ at 50 KV). At 50 KV, only 5% of the incident beam was transmitted through lawanit, thus the feasibility of using lawanit in the construction of X-ray installation using low-energy.

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539.12.172:62-41
Neutrons - Scattering. Slabs

**4. Scattering effect on neutron self-shielding in thin slabs.** Higino H. Ibarra, Jr. (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.232-236. tables. 4 refs.

A relatively simple numerical computation based on Lathrop's scheme is presented as a solution to the problem on the effect of scattering on neutron self-shielding in thin slabs of thicknesses in the order of a mean-free path (mfp). The results for purely absorbing slabs for thickness up to 1 mfp differ only to within 0.05%.

## CHEMISTRY

546.02-114:546.15
Iodine - Isotopes.

**5. Carrier-free Iodine-131 from telluric acid.** Elizabeth F. Montesa (Nuclear Engineering Dept., Philippine Atomic Research Center, Diliman, Quezon City). Manila, Philippine Atomic Energy Commission, April 1970. 4ℓ. 36p. graphs, tables, illus. 10 refs. [PAEC (D) 708].

Carrier-free iodine-131 was prepared by the wet distillation of irradiated telluric acid. Single distillations gave recoveries ranging from 30 to 40% and double distillations, 50-60%. Chromatographic analysis showed that the product is primarily $I^-$ (97-99%) with negligible amounts of $IO_4^-$ and $IO_3^-$. Radiochemical analysis indicated I-131 gamma peaks. An average half-life value of 8.07 days was obtained.

546.11:543.53
Hydrogen - Analysis. Activation.

**6. Determination of hydrogen content in liquid and solid sample by copper wire activation.** H.H. Ibarra and G.R. Gatchalian (Philippine Atomic Energy Commission, Manila). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.236-241. graph, tables, illus. 4 refs.

Experiments were conducted on the sensitivity of Cu as detector in the $H_2$ determination in solid and liquid samples. It was noted that the sensitivity of Cu varies directly with the ratio of thermal activation cross-section to the activation resonance integral. It is recommended that a central drypipe in the reactor core be used to reduce the effects of errors arising from flux spatial and energy spectral variations. The reactor power and irradiation and/or counting time should be increased to reduce errors due to counting statistics and the effect of the different absorption characteristics of the samples should be accounted for. The reduction in error would detect an $H_2$ content of 0.001g/c.c.

546.15:546.02-114
Iodine - Isotopes.

**7. Carrier-free iodine-131 from the wet distillation of tellurium dioxide.** Elizabeth Montesa (Philippine Atomic Research Center, Diliman, Quezon City). Manila, Philippine Atomic Energy Commission, April 1970. 1ℓ. 12p. table. 12 refs. [PAEC(D) 713]

Five gram samples of tellurium dioxide ($TeO_2$) were irradiated in the beam port (BX-2) of PRR-1 for 250 hrs and dissolved in NaOH, adding 30% $H_2O_2$ as an oxidant and was neutralized by the addition of $H_2SO_4$.

The gamma spectrum taken from Neutron Activation Analysis Group (NAA)

gammascope showed peaks of 0.364, 0.637 and 0.722 Mev, while the half-life determinations gave an average activity value of 8.03. Chromatographic analysis showed that I-131 distilled from $TeO_2$ contains primarily $I^-$ with almost no $IO_4^-$ and very negligible amount of $IO_3^-$. The absence of Te was confirmed by the method of Gopal and Frapart having a sensitivity of 7 μg.

547.913(043)
Essential oils.
Limnophila rugosa.

**8. A study on the essential oil of Limnophila rugosa (Roth.) Merril (Fam. Scrophulariaceae.** Perlita Imperial-Fajardo. Diliman, Quezon City, Graduate School, University of the Philippines, 1970. 8ℓ. 65p. graphs, tables, illus. 25 refs. (Thesis, M.S. in Pharmacy)

Thin-layer chromatography, gas chromatography, infrared spectra and ultraviolet spectra of the oil were determined. Results showed the presence of estragole and anethole. The oil is colorless when freshly distilled turning yellowish for some time and has an anise-like odor and slightly sweetish taste. The galenical preparations made using Limnophila oil compared favorably with those prepared using anise oil and synthetic anise oil in clarity, odor and color. The physico-chemical properties of the oil are given.

547.918:545.844
Chromatographic analysis - Thin layer chromatography.
Digitalis glycosides.

**9. The separation of digitalis glycosides by thin-layer chromatography.** Leticia M. Gomez Cabrera and Daniel P.N. Tsao. *Journal of the Philippine Pharmaceutical Association*, Jan.-June 1970, v.56, nos.1-6, p.5-8. tables. 8 refs.

Thin-layer chromatography for the separation of *Digitalis* glycosides using silica gel G as adsorbent and the upper phase of the mixture of ethyl acetate-methanol-water (10:2:5) as solvent system is reported. Good separations were obtained and the system has been used on total glycoside extracts from *Digitalis* leaf material.

547.94:542.61
Alkaloids - Isolation & purification.
Anonaceae.

**10. The alkaloids of Anona muricata Linn.** Gertrudes Aguilar-Santos, Julieta R. Librea and Alfredo C. Santos (College of Pharmacy, University of the Philippines, Diliman, Quezon City). *Philippine Journal of Science*, Dec. 1967 1970), v.96, no.4, p.399-407. graph, tables, illus. 10 refs.

The stem-bark of *Anona muricata* L yielded 3 alkaloids. The phenolic base was isolated as a crystalline perchlorate salt, m.p. 206-207°, and was found identical with reticuline by UV, IR, and mass spectral analyses. Nonphenolic base A was also a crystalline perchlorate salt, m.p. 195-196°. Its methiodide, m.p. 279-280°, proved identical with atherosperminine methiodide by UV, IR, NMR and mass spectral analyses. Nonphenolic base B melted at 176-177°, with a yield too small for structural determination.

547.94:542.61
Alkaloids - Isolation & purification.
Kibatalia gitingensis.

**11. Two isomeric alkaloids from the stem bark of Kibatalia gitingensis Woods.** Rizalina M. Bernal-Santos (College of Pharmacy, University of the Philippines, Diliman, Quezon City).

*Philippine Journal of Science*, Dec. 1967 (1970), v.96, no.4, p.411-419. table, diagr., illus. 5 refs.

Chemical and physico-chemical methods of analysis showed that lanitine, m.p. 184-186°C, is 2B-hydroxy 3B--dimethylamino-20S hydroxy-18 oic (-20) lactone-5 pregnene while lanitine, m.p. 223-225°C, is 2B-hydroxy 3-dimethylamino -20-hydroxy-18 oic (-20) lactone-5 prenene.

547.94:545.84(043)
Alkaloids in plants.
Alstonin macrophylla.

**12. The alkaloids of the leaves of Alstonin macrophylla Wall. (Fam. Apocynaceae).** Thanomsri Tiemsakul. Diliman, Quezon City, Graduate School, University of the Philippines, 1970. 8ℓ. 75p. graph, tables, illus. 97 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

Thin-layer chromatography of the ethereal extract showed the presence of 5 tertiary alkaloids from which alkaloid x was isolated as a white needle-like crystal, m.p. 200-210°C. Only 0.0005% yield was obtained. It was found to be an indoline base with an ajamaline-sarpagine nucleus containing 1 hydroxyl and 1 carbomethoxyl group. Mass spectrometry revealed the molecular formula to be $C_{21}H_{24}N_2O_3$.

547 962:612.015:613.24(=914)
Albumine - Metabolism.

**13. A study of albumin metabolism among normal and malnourished Filipinos.** Rodolfo F. Florentino and Estrellita G. Chico (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Dec. 1967(1970), v.96, no.4, p.337-351. tables. 28 refs.

Of the 10 normal adults and 17 children, 8 of them suffering from protein-calorie deficiency, were studied. Plasma volume values in the normal subjects were slightly higher than those reported in foreign literature. The average fractional catabolic rate (FCR) in the adult subjects was in the lower limit of values reported for normal whites. The normal children had higher FCR than the adults. Malnourished children showed an increase in plasma volume due to an increase in intravascular hydration. Plasma volume and half-clearance time decreased, while intravascular albumin mass, and the fractional and absolute catabolic rates increased during recovery from malnutrition.

## GEOLOGY

550.35(914)
Solar radiation.

**14. Extra-terrestrial radiation and daylength tables of daily values for the Philippines.** Geo W. Robertson. Quezon City, Weather Bureau, June 1970. 15p. tables. 6 refs. (Technical series no. 3)

The tabulated data on the daily values for specified latitudes ranges over the north-south extent of the Philippines. The data on extra-terrestrial solar radiation are based on the value of 2 gal $cm^{-2}$ $min^{-1}$ for the solar constant which is 3% greater than that used in the Smithsonian Meteorological Tables.

550.83
Geophysics - Exploratory.

**15. Bedrock depth determination by geophysical methods at Black Mountain, Kennon Project, Camp 6, Tuba, Benguet,** Juanito C. Fernandez, Pedro Estupigan and Ricardo Santos (Bureau of Mines, Manila). *Journal of the Geological Society of the Philippines*, March 1970,

v.24, no.1, p.27-36. graphs, map. 1 ref.

Earth resistivity and seismic refraction tests were conducted to determine the thickness of the overburden above the proposed haulage tunnel across the Bued River (Benguet). With the various interferences in the field, an accuracy tolerance of ±2 ft for the resistivity test and±10% for the seismic were obtained. The thickest deposit of gravel on the Bued River beneath the proposed tunnel varied from 24 to 34 ft between N12,200 and N12,500. Confirmation of the results by inclined drilling is recommended.

## PALEONTOLOGY

564(914)
Mollusks.

**16. Fossil mollusks from the Iloilo Basin.** Remedios M. Samaniego, Reynaldo E. Yago and Manuel G. Flores (Bureau of Mines, Manila). *Journal of the Geological Society of the Philippines*, June 1970, v.24, no.2, p.68-119. map, table, illus. 39 refs.

The record of 104 species of fossil mollusks taken from 21 localities distributed in 5 sedimentary formations within the Iloilo Basin (Iloilo City) is presented; 33 other forms were identified up to generic level. Most of the pelecypod species are predominant in the Ulian and Cabatuan formations except those belonging to the genus *Anadara*. The species of the genus *Conus* are found mostly in the upper Tarao, Dingle, Ulian and Cabatuan formations. Those belonging to *Turridae* and *Nassariidae* occur almost in the same assemblages and only in the younger formations. Species of *Murex* are present only in the younger sediments, especially those of the Ulian and Cabatuan formations.

## BOTANY

581.132:53.08 581.12:53.08
Photosynthesis. Plants - Respiration.

**17. Measuring photosynthesis and respiration of plants in the field.** Ed. B. Pantastico, N.V. Norcio and C.A. Eusebio *Philippine Biota*, Feb. 1970, v.4, no.3, p.28-31. diagr., illus 8 refs.

The instrument described is designed to measure photosynthesis as delineated by the amount of $CO_2$ absorbed by the plants expressed in mg $CO_2$/unit leaf area in unit time. Respiration measurements can also be done using the instrument on plants kept in canopies covered with black cloth, or by doing the determination at night. The instrument may also be used in detecting photosynthetically efficient plants, in determining sun-loving and shade-loving plants and in assessing the effects of fertilizer levels, diseases, water supply and chemical sprays.

582.26/.275(043)
581.526.323.3(043)
Algae. Benthic flora.

**18. Taxonomy of the marine benthic algae at Calatagan, Batangas, Philippines.** Aniceta Inocencio-Villones. Victoneta Park, Malabon, Rizal, Institute of Graduate Studies and Applied Research, Araneta University Foundation, April 1970. xi, 69p. 10ℓ. map, plates, tables. 33 refs. (Thesis. M.S. in Biology, Major in Botany)

Collections made from Dec. 1968 to Nov. 1969 include 32 species, 29 genera, 17 families, 11 orders, and 4 divisions mostly from the littoral zone and some from the supralittoral and shallower portions of the sublittoral zones. The algal flora were unicellular to multi-

cellular forms. Representatives of the brown algae have perforated, netlike and fanlike fronds and some with dichotomous branches (*Dictvota*). *Turbinaria* and *Sargassum* species have tough bushy vegetative parts with leaflike structures and vesicles. The Agarophytes are filiform, teretes and bushy, like *Gracilaria* and *Laurencia*. Others are membranous, foliaceous, polysiphonous, and have pericentral cells with cortical bands.

582.273:581.19(043)
Algae - Colloid content.
Rhodophyceae.

**19. Studies on some Philippine Rhodophytes and their colloidal contents.** Clarita A. de Leon. Manila, Graduate School, University of Santo Tomas, 1969. v, 65p. illus. 29 refs. (Thesis. M. S. in Botany)

Studies made on 16 species revealed that geographical location, season and environment tend to cause slight variation in their morphological structure. Of the species, *Gelidium pulchelum* gave the highest colloid yield (41.10%) by hot water extraction and only *Euchema* sp. yielded carrageenin. *Gelidium* sp. and *Gracilaria* sp. yielded agar, and *Halymenia* sp. and *Porphyra* sp. yielded colloids similar to agar; *Galazaura* sp. yielded no colloid. It was found that the properties of the colloids were affected by the habitat of the species.

582.545:631.577(043)
Nipa sap.

**20. Tuba yield of nipa.** Pedro C. Santos, Jr. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 27p. 3ℓ. graphs, plates, tables. 5 refs. (Special problem. B. S. in Forestry)

Ten plants from various parts of the mangrove swamp in Malolos (Bulacan) were used in the study. The characteristics and habitat of the sap were observed; the highest individual flow was 1,407 c.c. and the lowest, 190 c.c.

The factors influencing the sap flow and the uses of nipa sap are given.

582.736:66.014(043)
581.19(043)
Glycosides - Analysis.
Entada phaseoloides.

**21. A glycoside from the stem of Entada phaseoloides (Linn) Merr.** Mohammad Iqbal Khan. Diliman, Quezon City, Graduate School, University of the Philippines, April 1970. 52p. graphs, plates, diagr. 79 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

Acid hydrolysis of the alcoholic extract yielded sapogenins. Results of the thin layer chromatography revealed that the sapogenins showed 3 spots with $R_f$0.18, $R_f$0.4 and $R_f$0.5. The fraction with $R_f$0.4 was identified as oleanolic acid which is composed of acetyl-oleanolic acid, methyl oleanolate, methyl acetyloleanolate, bromolactone, and bromolactone acetate.

582.798:631.53(043)
Germination.
Sterculia oblongata - Seed.

**22. The effect of germination on the positional method of sowing Malabuho (Sterculia oblongata R. Br.) seeds.** Rogelio M. Gatan. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 3ℓ. 11p. 6ℓ. plates, tables, illus. 7 refs. (Thesis. B.S. in Forestry)

Results of the study showed that the seeds grown with their hila facing

sidewise showed 50% germination, those facing upwards, 48%, those facing downwards, 42%, and the control seeds germinated 44%.

## ZOOLOGY

595.76:591.3(043)
Bean weevils.
Callosobruchus chinensis.

**23. A study on the biology of the bean weevil Callosobruchus chinensis Linn.** Priscillano B. Salazar. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. i, 21p. graph, tables, illus. 10 refs. (Thesis. B. S. in Agriculture, Major in Entomology)

Eggs of the bean weevil were hatched from 5 to 8 days after oviposition. The larva molted 4 times before pupating inside the feeding hole with an average larval stage of 12.5 days. The pupal stage ranged from 6 to 8 days. The adults mated 1-4 days after emergence and laid eggs 1-3 days after 1st mating. The developmental period from egg to egg varied from 24 to 37 days. Males lived from 6 to 15 days while females, from 6 to 11 days. Adult females laid eggs from 2 to 6 days with 1-26 eggs/oviposition and a total of 10-64 eggs. The sex ratio was observed to be 1.04:1.0. The size of the seed had no apparent influence on the number of eggs laid/bean seed.

599.32:616.5
Rodents. - Disease reservoirs.

**24. Murine rodents and shrews in Manila and suburbs as reservoir of ringworm fungi.** Alejandro C. Reyes, Evelyn Fontanilla, Soledad Lopez and Florencita Arenas (Institute of Hygiene, University of the Philippines, Manila). *Acta Medica Philippina*, ser.2, July-Sept. 1970, v.7, no.1, p.10-14. tables, illus. 13 refs.

A total of 588 *Rattus norvegicus*, 70 *R. rattus*, 19 *Suncus luzonicus*, and 8 *Mus commissaurus* were examined by the cultural method. None of these animals showed lesions. However, 15.6% carried *Trichophyton mentagrophytes*, 0.7% carried *Microsporum gypseum* and in 2% of the animals, both species were present. All strains of *T. mentagrophytes* isolated were of the granular type. Pathogenicity for human beings of this species was shown by the development of ringworm lesions in 2 personnel handling cultures and or experimentally infected mice.

The public health implication of these findings is discussed.

## MEDICAL SCIENCES
## PHYSIOLOGY

612.12/.14(=914)
Blood - Analysis and chemistry.

**25. Plasma cortisol levels among Filipinos.** Leland S. Villadolid, Anacleta I. Iledan, Concepcion Abundo and Asuncion I. Acurantes (Medical Research Lab., Philippine General Hospital, Manila). *Acta Medica Philippina*, ser.2, Jan.-March 1970, v.6, no.3, p.132-134. graph, table. 22 refs.

Plasma levels of 17-hydroxycorticosteroids determined in 70 normal subjects by the Eik-Nes method showed a range of 5.7-9.1 gamma % and 18.8 gamma % in males and females, respectively. The over-all mean for both sexes was 13.3 gamma %.

612.396:547.458.2:616-053.2(=914)
Lactose intolerance - Diagnosis.

**26. Lactose tolerance tests in asymptomatic Filipino children -- a preliminary report.** Perla D. Santos-Ocampo,

Arturo G. Ludan, Carmencita C. Lara and Dominga M. Ilarde. *Philippine Journal of Pediatrics*, Jan.-Feb. 1970, v.19, no.1, p.22-29. graph, tables, 11 refs.

Of the 20 subjects given a lactose load, aged 2-14 yrs, 9 showed evidence of lactase deficiency, accompanied by abdominal symptoms and appearance of acidic stool. A mean peak rise in blood sugar of 11.3 mg % was obtained compared to 49 mg % in the normal group. These findings which have been observed among Caucasians and non-Caucasians may be due to genetic factor.

## HEALTH AND HYGIENE

613.2:547.857(=914)
547.857:545.81(=914)
Purines - Analysis.
Uric acid - Analysis.

**27. Effect of purine loading on serum and urinary uric acid among Filipino subjects.** Pelagia S. Bayani-Sioson (College of Dentistry, University of the Philippines, Manila) and L.A. Healy (Mason Clinic, Seattle, Washington, U.S.A.). *Acta Medica Philippina*, ser. 2, July-Sept. 1970, v.7, no.1, p.15-20. graph, tables. 12 refs.

An oral purine load of 4 g of yeast ribonucleic acid was given to 14 normal adult male subjects for 4 days. Serum and urine samples were analyzed for uric acid and creatinine by the enzymatic spectrophotometric and automated colorimetric methods, respectively. Results indicated that some Filipinos developed hyperuricemia due to their inability to increase uric acid excretion to compensate for a diet with high purine levels.

Hyperuricemia and gout may become common among Filipinos as the diet improves from rice-rich to purine-rich foods.

614.898(914)
Radiation effects.

**28. A study of the exposure doses of radiation workers in the Philippines.** Phoebe Tan and Norma Bustamante (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.223-227. graphs, tables. 1 ref.

Based on the film badge service record of the Health Physics Dept., Philippine Atomic Research Center, Diliman (Quezon City) from 1963 to 1969 50% radiation workers were involved in the medical use of radiation, 35% in research and 15% in industry. Analysis of the dose-range showed that the majority of radiation workers did not exceed 100 mrem/yr. 86% of the workers accumulated an exposure dose of 0.1 rem and only 1.75% exceeded 0.5 rem in 1 yr. The average dose accumulated by radiation workers in industrial firms was higher than those in medical and/or research organizations. However, the highest average dose (0.4 R/yr) obtained was much lower than the maximum permissible exposure of 5 R/yr.

## PHARMACOLOGY

615.41:578.083(043)
Tablets (medicine) - Manufacture.

**29. A study of the effects of certain binders and of complexation on the dissolution rate of the active ingredients in tablet formulations.** Saeed Ahmed Khan. Diliman, Quezon City, College of Pharmacy, University of the Philippines, 1970. 7ℓ. ii, 200p. graphs, tables. 85 refs. (Thesis. M.S. in Industrial Pharmacy)

*In vitro* dissolution of active ingredients from tablets and the concentration time curves are discussed and the description of the apparatus and procedure for their determination, given. The dissolution rate of salicylic acid tablets was influenced by the concentration and nature of the binders. Pre-gelatinized corn starch was effective as a dry tablet binder. Compressed tablets with acacia powder as binder showed the fastest dissolution rates followed by those using ethylcellulose and polyvinylpyrrolidone. Characteristics of the soluble complex formed between salicylic acid and acacia differ from either of the free drugs.

615.5:616-099:578.083
Plants, Medicinal.
Aristolochia tagala.

**30. Toxicity studies on Aristolochic acid isolated from Aristolochia Tagala, Cham.** Leticia T. Angeles, Benjamin D. Canlas, Jr., Jesusa A. Concha, Alicia S. Sotto and Purita L. Aligaen. *Acta Medica Philippina*, ser. 2, April-June 1970, v.6, no.4, p.139-148. graphs, tables. 17 refs.

Acute and short-term chronic toxicity studies in mice showed the delayed toxic effects of aristolochic acid mostly on the kidneys, spleen, liver, lungs and the hematopoietic system, typical of the phenanthrenes and benzylisoquinolines. An $LD_{50}$ of 15.82 mg/kg was found by the Litchfield and Wilcoxon, Karber, and Probit methods. Death was due to respiratory arrest, and fatalities were observed only at doses higher than 40 mg/kg. The hematologic picture revealed a marked decrease in lymphocytes with a concomitant granulocytosis among the female mice at 2 mg/kg. Other toxic manifestations were ataxia, sedation, generalized weakness, increased respiration, vasodilation and tachycardia.

## DISEASE. PATHOLOGY

616.074:595.122.22(043)
Schistosoma - Growth & development.

**31. An evaluation of the Merthiolate-Iodine-Formaldehyde-concentration technic as a quantitative method of stool examination for Schistosoma japonicum ova.** Bayani L. Blas (Medical Parasitologist, Schistosomiasis Control Pilot Project, Palo, Leyte). *Philippine Journal of Science*, Dec. 1967. (1970), v.96, no.4, p.421-432. graphs, tables. 7 refs.

In 27 out of 30 samples, only the 6th sediment was negative for the ova. 10 random samples showed a mean TRN (total recoverable number) of 168.5 eggs with a range of 144-192 for stirred stool of relatively high counts and TRN of 14.3 with a range of 12-17 for stirred stool of low counts. The unstirred specimens likewise showed a wide range of egg recovery. However, about 95% or more could be recovered using all first 3 sediments.

616-089.8:611.24
Lung - Transplantation.

**32. An operative approach to long term survival in experimental lung autotransplantation.** Romeo D. Zamora, Rogelio Teotico, Alfredo Balderrama, Manuel Paris and Rafael Altamirano (Quezon Institute Experimental Laboratory, Quezon City). *Philippine Journal of Surgical Specialties*, Jan.-March 1970, v.25, no.1, p.3-13. tables, illus. 22 refs.

Experiments were performed on 6 adult mongrel dogs, 17-21 lb-weight.

The technique of lung excision was essentially similar to that reported by Neptune, et al. Survival rate was not affected by the length of time pulmonary circulation and ventilation was cut off. In 4 of the cases, blood clots formed at the atrial anastomosis site due to extensive narrowing. Post-mortem findings on 3 cases where bronchial clamp was utilized, revealed traumatic inflammatory changes with slough formation; however, these were not observed in cases where gauze packing was used. Non-ligation of the distal bronchial and lymphatic vessels during the hilar dissection prevented blood and lymph stasis in the transplanted lungs. Left lung transplantation is recommended for easier technical approach.

616.37-001:616-089
Pancreas - Injuries.

**33. Traumatic injury to the pancreas.** Napoleon M. Apolinario and Porfirio M. Recio (UP-PGH Medical Center, Manila). *Philippine Journal of Surgical Specialties*, April-June 1970, v.25, no.2, p. 62-66. table.

Seven cases with pancreatic injuries seen at the Philippine General Hospital (Manila) are reviewed. The pancreatic laceration was managed by suturing with non-absorbable sutures and sump drainage was done. Only 2 cases developed complications, one in the form of pancreatic-cutaneous fistula and subcutaneous abscess, and the other had peritonitis.

616.432-053.2:615.74
Cushing's syndrome.

**34. Non-suppressible Cushing's disease.** Ophelia T. Zarzuela, Cosme D. Cagas, Leticia Buenaluz, Gabriel Carreon, Roman S. Ibay, Jr., Perla D. Santos-Ocampo and Sonia Buendia (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina*, ser.2, July-Sept. 1970, v.7, no.1, p.21-23. graphs. 14 refs.

A case of a 13-yr-old boy with Cushing's disease due to adrenal hyperplasia is reported. The case is unique in that there was failure of a standard big dose of dexamethasone to suppress the urinary 17-OHCS

616.432-085
616.45-085
Pituitary-adrenal function tests.
Corticotropin.

**35. Pituitary-adrenal function during combined anabolic drug and intermittent corticotropin administration in patients receiving corticosteroid therapy.** Gabriel G. Carreon, Metodio Palaypay, Leticia de Asis-Buenaluz, Esperanza I. Cabral and Sonia Buendia (UP-PGH Medical Center, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism*, 1970, no. 3, p.29-32. graphs. 19 refs.

Pituitary ACTH reserve and adrenocortical function were studied in 4 female patients aged 21 to 50 yrs. Results showed that the combined administration of ACTH and anabolic drugs during long term steroid treatment did not reverse the pituitary-adrenal suppression. Also, continuous administration of corticosteroid did not improve hypocorticotropism and hypoadrenocorticism. Withdrawal of corticosteroids is suggested for corticogenic adrenal atrophy.

616.44:615.74
Hyperthyroidism - Diagnosis.
Corticotropin - Diagnostic use.

**36. Corticotropin secretion in thyrotoxicosis.** Norma T. Gaffud and Macluifina Ofiana (Radioisotope Lab., UP-PGH Medical Center, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism*, 1970, no.3, p.23-28. graphs, tables. 8 refs.

The corticotropin (ACTH) secretory mechanism was studied in 10 thyrotoxic adults by direct measurement of plasma ACTH. The ACTH secretory apparatus exhibited an exaggerated circadian pattern and a responsiveness to a "negative feedback" mechanism. The mean ACTH level at the 8:00 a.m. baseline among thyrotoxic cases was elevated to 176 ± 11 and at 4:00 p.m. was lowered to 31.5 ± 5.5. With metyrapone, the values did not rise significantly above baseline levels, although with low dose dexamethasone suppression, the values lowered to 12.4 ± 4.2. The poor response to metyrapone may indicate a poor reserve in thyrotoxicosis.

616.6-053.2
Urography.

**37. The excretory urogram and voiding cysto-urethrogram—a study of 116 cases.** Anna L. Garcia (National Children's Hospital, Quezon City). *Philippine Journal of Pediatrics*, Jan.-Feb. 1970, v.19, no.1, p.30-38. illus. 8 refs.

Of the 116 cases of urinary tract infections studied roentgenographically, 62 showed normal upper tracts and bladder, while 54 showed abnormal findings in the excretory urogram manifested by calyceal clubbing, pyelocalyceal dilatation, and ureteral dilatations, 28 of which showed reflux on voiding cystograms. The excretory urogram greatly helps in evaluating a child presenting with signs and symptoms of urinary tract infections.

616.74:615.361
Collagen diseases - Drug therapy.

**38. Prolonged corticosteroid therapy of a collagen disease with intermittent corticotropin and antimalarial regimen.** Leticia T. Angeles (College of Medicine, University of the Philippines, Manila). *Proceedings of the Philippine Society of Endocrinology and Metabolism* (1970), no.3, p.51-66. graphs, tables.

A case of an otherwise fatal autoimmune disease belonging to the collagen group, lupus erythematosus (LE), which exhibited both systemic (SLE) and discoid (DLE) forms in a female is discussed. Continuous steroid therapy for 15 yrs proved life-saving. Initial big doses of salicylates only checked the arthritis. The LE was under control for 6 yrs with 3-4 mg daily of dexamethasone with occasional vasodilators, anabolic, steroids, diuretics, antibiotics and multivitamins. However, while the blood picture remained negative for LE cells and skin lesions, and arthritis was under control, other complications proved threatening. Antimalarials given for 1 mo. were stopped due to headaches and photo-sensitization. The importance of diet and close medical supervision to insure successful therapy is emphasized.

616.83-053.2:616-07(-914)
Child behavior disorders.
Central nervous system diseases-
Diagnosis.

**39. Behavior disorders among Filipino school children with chronic nervous system diseases.** Pablo B. Arnecilla

and Violeta Nepomuceno-Acorda. *Philippine Journal of Pediatrics*, Jan.-Feb. 1970, v.19, no.1, p.5-21. graphs, tables, illus. 50 refs.

Forty children (aged 7-13 yrs) with complaints of temper tantrums, learning problems, hyperactivity, and nervousness were studied from the clinical and EEG standpoints. No significant correlation was observed between the nature of the complaint and the type and site of EEG abnormality except for a relatively high incidence of learning difficulties in the abnormal EEG group with occipital and possibly temporal foci. With regards to group participation majority of the children lacked leadership, had the tendency to isolate themselves from other children, and could not get along well with the opposite sex; their attitude towards authority were submissive, shy and fearful. The findings of behavioral disorders could not be explained on the basis of brain pathology alone, but by other factors like home environment, school stimulation, and accessibility to normal activity.

616.986.7-078
Agglutination tests. Leptospira-Isolation & purification.

**40. Persistence of Leptospira agglutinating antibodies in man.** Estela G. Famatiga (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina*, ser.2, Jan.-March 1970, v.6, no.3, p.90-94. graph, tables. 16 refs.

Agglutination-lysis test was made on serum samples taken from 51 subjects confirmed positive for schistosomiasis. Results revealed that 43% of the cases gave agglutinin titers ranging from 1:100 to 1:3000 against *L. icterohaemorrhagiae*, *L. pyrogenes*, *L. grippotyphosa*, *L. pomona* and *L. australis*. Residual antibodies to these serotypes were shown to persist and be detectable at 1:50 serum dilution for more than 5 yrs. Antibody titers of 1:300 and above decreased to a level of 1:100 within 6 mo. to 1 yr.

This study indicated a high incidence of leptospirosis (43%) among farmers in Palo (Leyte).

616.995-071
Filariasis.

**41. Filariasis studies in Mindanao, Republic of the Philippines: the third endemic focus for Malayan filariasis.** Benjamin D. Cabrera and Charlemagne T. Tamondong (Institute of Public Health, University of the Philippines, Manila). *Acta Medica Philippina*, ser.2, Jan.-March 1970, v.6, no.3, p.102-131. graphs, maps, tables. 14 refs.

Night blood smears were taken from 5446 subjects residing close to fresh water swamps, which are the ideal breeding places for the mosquito vector. Results showed that 1.95% were positive for *W. bancrofti*, 0.46% for *B. malayi* and 0.07% for mixed infection. Agusan was found to be the 3rd endemic focus for malayan filariasis where the incidences of *B. malayi* (1.2%) and *W. bancrofti* were high. The correlation between abaca industry and endemicity of bancroftian filariasis is demonstrated in this study. As found in previous surveys the prevalence among males is higher than in females and likewise, higher in older than younger age group. Based on the average microfilarial count in relation to the age composition of the subjects, it appears that malayan filariasis was probably introduced earlier in Palawan than in Sulu and Agusan.

616.995-093/-098
Helminthiasis - Occurrence.
Parasitology - Methodology.

**42. A parasitological survey of Leveriza, Malate, Manila.** Godofredo R. Celis and Ellen V. Viloria (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina*, ser.2, Jan.-March 1970, v.6, no 3, p.95-101. graph, tables, diagr. 14 refs.

Stool examination of 294 subjects by direct fecal smear method revealed that the most prevalent helminths were ascaris (60.8%) and trichuris (49.3%); hookworm, strongyloides and enterobius infections were also found. The most common protozoans were *E. coli* (4.1%) and *G. lamblia* (2.4%); *E. nana, C. mesnili* and *T. hominis* were found less frequently.

618.14:616-006:616-074
Hydatidiform mole - Diagnosis.

**43. Tanned red cell hemagglutination method in the detection of hydatidiform moles.** Flora M. Pascasio, Rosalina Suarez and Genara Manuel-Limson (College of Medicine, University of the Philippines, Manila). *Acta Medica Philippina*, ser 2, Jan.-March 1970, v.6, no.3, p.85-89. graphs, table. 7 refs.

The study involved 164 cases of normal pregnancy, 71 cases of hydatidiform mole and 8 cases of choriocarcinoma. Using the antibody titer 1:5120 as the cut-off point between normal pregnancy and trophoblastic tumor, 91.5% of the H-mole cases gave titers above 1:5120, and only 13% of normal pregnancies gave similar titers. The cut-off titer, however, is rather high indicating that the method is too sensitive and/or non-specific substances interfere.

## VETERINARY MEDICINE

619:595.42:599.32(043)
615.777:599.32·595.42(043)
Mites - Diseases and pests - Control.
Ciodrin.

**44. Clinical trial of Ciodrin as an acaricide against Psoroptes cuniculi (Delafond 1859), (Cannestrini and Kramer, 1899), scab mites of rabbits.** Arturo M. Malig. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 12p. table, illus. 9 refs. (Thesis. Doctor of Veterinary Medicine)

Twelve of 15 rabbits were dipped for 30 sec in 0.1% Ciodrin 3 times at 7 days interval. It was observed that after the 3rd treatment, all stages - eggs, larvae, nymphs, and adults of the pests - were completely eliminated.

619:615.781:637.7(043)
Veterinary anesthesia.

**45. A preliminary study on the comparative potency of Combelen and Tranvet as anesthetic potentiators in dogs.** Renato G. Dacanay. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, April 1970. 3ℓ. 19p. tables. 19 refs. (Thesis. Doctor of Veterinary Medicine)

Tranvet proved more potent than Combelen. Tranvet significantly reduced the amount of Nembutal needed to produce surgical anesthesia by an average of 26.55% of the total calculated dose while Combelen reduced it by only 17.0%.

619:616-001:636.7(043)
615.77:662.816:616-001(043)
Dogs - Wounds and injuries.
Coconut shell charcoal.

**46. Effect of powdered coconut shell charcoal on wounds of dogs.** Estelito G. Hular. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 2ℓ. 15p. tables. 8 refs. (Thesis. Doctor of Veterinary Medicine)

Two trials on 4 dogs given doses of Nembutal intravenously were conducted. In the 1st trial, 6 incision wounds (3 on the right and 3 on the left) were made on the belly of each dog, and in the 2nd trial, the same number of wounds on the lateral aspects of the anterior and posterior limbs. Charcoal was applied daily on the right side wounds. All wounds were dressed daily to prevent licking and falling off of the powder. Results showed that the treated wounds healed 3-4 days earlier than the untreated ones. This healing effect may be attributed to the dehydrating power and adsorbing action of the charcoal.

619:616-001:636.7(043)
615.778/.779:616-001(043)
Wound healing - Dogs.

**47. Comparative study on the healing effect of powdered antibiotic and sulfanilamide powder directly applied on surgical wounds in dogs.** Teresita N. Guevarra. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 17p. table. 2 refs. (Thesis. Doctor of Veterinary Medicine).

This study sought to compare the effect of Dicrysticin and sulfanilamide powder on wounds resulting from castration, docking, ear-trimming, anal sac resection, and laparotomy performed on 12 dogs. Results showed that wounds treated with Dicrysticin healed by an average of 4 days earlier than the wounds treated with sulfanilamide powder.

619:616-007.4-089:636.4
636.4.089
Hernia - Surgery - Swine.

**48. A case of perineal hernia with complications in a pregnant sow.** Jaime M. Aycardo. *U.P. Veterinarian*, 1969-1970, v.14, no.1, p.36-37.

The case was seen in a 2-yr-old Landrace Yorkshire pregnant sow. Surgery revealed an intestinal loop instead of urinary bladder. No recurrence of herniation was noted, in spite of antibiotic and fluid therapy the case proved fatal.

619:616.594:636.7(043)
615.77:616.594:636.7(043)
Alopecia.
Foltene Forte.

**49. A study on the efficiency of a hair tonic against true Alopecia in dogs.** Wilfredo P. Flores. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 2ℓ. 16p. table, illus. 6 refs. (Thesis. Doctor of Veterinary Medicine)

Four dogs, ages ranging from 3 mo. to 2 yrs, were treated with Foltene Forte, an experimental medical preparation. Daily application of Foltene Forte stimulated the growth of new hair within 14 days. These findings showed that Foltene Forte can be a fairly good hair-growth stimulant and tonic.

619:616.988-07
Newcastle disease.

**50. On the diagnosis of Newcastle disease.** Meliton N. Novilla and Elizabeth A. Belen (College of Veterinary Medicine, University of the Philippines Diliman, Quezon City). *U.P. Veterinarian*, 1969-1970, v.14, no.1, p.14-17. tables. 5 refs.

A combination of methods in the diagnosis of Newcastle disease (ND) is described as practised in the College of Veterinary Medicine, University of the Philippines, Diliman,(Quezon City). Based on local observations, a point system for various factors associated with the disease is given which may be used as an aid in the diagnosis. A score of 20-55% justifies a suspicion of ND; 60-90% a strong suspicion; and 95-100%, a positive diagnosis.

619:616.995:636.5(043)
636.5.089(043)
Poultry - Parasites.
Leucocytozoon caullervi.

**51. The neuropathology of chickens naturally infected with Leucocytozoon caulleryi.** Benedicto A. Santiago. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, April 1970. 3ℓ. 21p. plates. 11 refs. (Thesis. Doctor of Veterinary Medicine)

23 birds with clinical signs of the infection were used. Macroscopically, no significant alterations were noted. Histopathologically, vascular congestion and hemorrhages, perivascular cuffs and sleeves of lymphocytes and histiocytes, coagulation necrosis, and glioses were noted. Megaloschizonts, merozoites, and gametocytes were seen in the different regions of the brain. Examination of the spinal cord, brachial and sciatic nerves revealed slight vascular congestion, hemorrhage, and lymphocytic infiltration, but schizogenic stages of the parasite were not found

619:616.995:636.5(043)
636.5.089(043)
Poultry - Parasites.
Leucocytozoon caullervi.

**52. Pathologic changes in organs other than the central nervous system of chickens naturally infected with Leucocytozoon caulleryi.** Joseph S. Masangkay. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, April 1970. 3ℓ. 25p. illus. 10 refs. (Thesis. Doctor of Veterinary Medicine)

Three male and 20 female birds of different breeds, 5-12 wks old were used. Significant macroscopic changes observed were hemorrhages, pinpoint to pinhead size whitish spots in various organs, and a slight to severe enlargement of the spleen. Microscopically, megaloschizont of varying stages of development were found in the heart, liver, proventriculus, lungs, and kidneys. Early schizonts were noted in the heart, spleen, and lungs.

619:616.995.121:636.5(043)
615.73:616.995.121:636.5(043)
Tapeworms - Parasitic in poultry.
Anthelmintics - Therapeutic use.

**53. The anthelmintic efficacy of atabrine against taeniasis in native chickens.** Salvador G. Davag. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 16p. plates. 3 refs. (Thesis. Doctor of Veterinary Medicine)

Twelve 3-4 mo.-old native pullets and cockerels were treated for tapeworm

infections. The drug was found highly effective against *Raillietina tetragona, R. echinobetrida, R. velzi,* and *Hymenolopsis carioca.* No undesirable effects were observed except for slight discoloration of the intestinal mucosa which disappeared after 10 days.

619:636.5.089:615.371
Newcastle disease - Prevention & control.

**54. Management of Newcastle disease outbreak.** Lino T. de Vera. *Better Poultry and Livestock* Aug. 1970, v.11, no.12, p.20-21.

The disease has been controlled by intramuscular administration of the Bureau of Animal Industry avian pest vaccine and "Combistrep solution" followed by a high level of broad spectrum antibiotic for 3 days and antibiotic-vitamins premix for the entire duration of the infection given thru feeds or drinking water. However, revaccination need not be instituted on flocks with NCD-HI titre of 1:80 and above. Quarantine measures should be observed to minimize the spread of the disease.

619:636.5.089:615.777(043)
Poultry - Diseases and pests.
Collodion.

**55. Prophylactic treatment of omphalitis in chicks with Collodion.** Efren P. San Juan. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 19p. plates, table, 9 refs. (Thesis. Doctor of Veterinary Medicine)

200 day-old White Leghorn chicks with unhealed navel were used in the study. Treated birds were observed to be healthier, more active, and with significantly less mortality than the control.

619:636.7:615.781(043)
616.28:636.7:615.781
Veterinary anesthesia.

**56. Some observations on local anesthesia of the external ear in the dog.** Mariano G. Austria. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, April 1970. 3ℓ. 18p. plates, illus. 2 refs.

Variable degrees of anesthesia of the left and right ears of 15 native dogs were obtained with the use of 1 and 2% procaine hydrochloride. This was probably due to the difficulty in determining the injection sites. 2 dogs subjected to ear-trimming under sedation with Combelen, with the facial and second cervical nerves blocked, responded well.

619:636.7:617.54(043)
Dogs - Surgery.

**57. The thoracic inlet and its possibilities as an approach to thoracic surgery in the dog.** Paul P. Sova. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, Oct. 1970. 5ℓ. 18p. illus. 5 refs. (Thesis. Doctor of Veterinary Medicine)

Observations were made on 13 healthy adult mongrel and foreign breeds of both sexes. In small dogs, it was noted that the thoracic inlet is small and the closely packed arrangement of the structures within it seems to limit the use of the inlet as an approach to thoracic surgery. However, the puncture of the anterior vena cava can be done easily through the inlet. This technique is valuable when the animal is in a state of shock and the superficial vessels are collapsed.

## ENGINEERING

621.039.8.002:546.18
Phosphorus - Manufacture.

**58. Extraction of Phosphorus-32 from neutron-irradiated sulfur dissolved in hot tuluene.** D.B. Domondon, F.T. Ocon and J.L. Valdezco (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.197-203. graphs, table, illus. 3 refs.

Two alternative methods of extracting $^{32}P$ from neutron-irradiated S dissolved in hot tuluene were developed to improve the routine processing of $^{32}P$ currently used at the Philippine Atomic Research Center, Diliman (Quezon City). Both methods required shorter processing time and promoted higher yield. Tests conducted on the $^{32}P$ products obtained by both methods gave negative results for Al, Mg and heavy metals.

621.039.85:621.317.7:53.089
621.317.7:53.089:621.039.85
Flow meters - Calibration.
Radioactive tracers.

**59. A "built-in" radiotracer ($^{24}Na$) for measuring analyst circulation rates.** D.B. Domondon and M.C. Berbano (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.231-232. graph. 1 ref.

Commercial catalyst beads were labeled with $^{24}Na$ for use in the radioactive tracer technique in the periodic calibration of the catalyst flow rate measuring instrument in a petroleum refinery. Results indicated the possibility of using $^{24}Na$ for the purpose due to its emission of high energy gamma rays at high abundance/disintegration, and its 15-hr half-life allows accumulation of sufficient data.

621.039.85:631.42
Radioactive tracers. Soils.

**60. A radiotracer adsorption study on Baguio soils.** Benjamin B. Pablo (Research and Development Div., Philippine Atomic Energy Commission, Manila). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.211-214. graphs, tables. 8 refs.

The study was conducted as a preliminary solution to the leakage and seepage problems encountered at the Sto. Tomas Dam and the tunnels of Benguet Consolidated Mines Inc. (Baguio City). It was found that cationic tracers suffered considerable losses from adsorption. However, chelation of the cations and addition of carrier improved the performance of the tracers. $Na^{131}I$ can be used in the Sto. Tomas Dam soil with NaI as carrier and it is suggested that the radioactive solution be buffered to prevent acidification and subsequent oxidation of iodide. In Benguet Consolidated Mines, the use of $^{60}Co$ in the form $K_3 Co(CN)_6$ is recommended.

622.243
Mining machinery. Ore handling.

**61. Proposed Slusher System (Climax Plan) for Philex 3400 level horizon.** Tomas A. Cayabyab (Chief Stope Engr., Philex Mining Corp., Baguio City). *Philippine Mining Record*, Jan. 1970, v.4, no.2, p.18-23. tables, illus.

The systen involves direct loading of ore to cars, eliminating the grizzly level, shore ore passes, hoisting of ore and pumping of mine water. Bigger slushers and more ore cars will compensate for the loss of surge in the shore ore passes. The stope blocks are

bigger with a minimum area of 23,040 sq. ft. and 5 slusher lines. The mine is expected to deliver 7000 T.P.D. for 2 shifts a day, 7 days a week operation.

## AGRICULTURE AND FORESTRY

631.16
Farm management.

**62. An economic comparison between tractor-operated and carabao-cultivated rice farms.** Nelly G. Alviar (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.504-517. graphs, tables. 6 refs.

A survey conducted in Laguna showed an increasing trend in the use of tractor especially in farms larger than average and are double-crop irrigated. This increase was due partly to the higher repayment capacity of large and irrigated farms. The economic benefit from the use of tractor is associated with the reduction in labor and time for land preparation compared to the use of carabaos. No significant difference in yield between tractor- and carabao-cultivated farms was noted.

631.41(914)
Soil analysis.

**63. The profile organic matter distribution of soils in the Central Luzon State University Reservation.** Amor P. Ruba and Juliana B. Dacayo. *CLSU Scientific Journal*, July-Dec. 1970, v.6, no.1, p.26-34. tables. 13 refs.

Results of analysis showed that the organic matter content of the soil was generally higher at 6-12 in. than at 0-6 in. and 12-18 in. depths and it was found that soil pH tended to increase with increasing soil depth. A significant negative relationship existed between organic matter content and pH. However, an insignificant negative relationship between soil organic matter and percent clay was obtained. Mechanical analysis showed that the lower depth contained more coarse particles than the 0-6 in. depth.

631.42:631.82:633.18(043)
Soil - Fertlizer requirements

**64. Determination of the fertilizer requirements of Quinga sandy loam for rice (Oryza sativa Linn.)** Nazario B. Sarceda. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Jan. 1970. 4ℓ. 15p. tables. 16 refs. (Thesis. B.S. in Agriculture, Major in Soils)

The soil samples from Valenzuela (Bulacan) were air-dried, pulverized, passed through a 4-mm mesh sieve, and potted. Split application of fertilizers was done. Results showed that the optimum combination of nutrients applied using IR-8 was 90 kg N, 90 kg $P_2O_5$, and 210 kg $K_2O$/ha.

631.42(043)
Soil analysis.
Soils - Phosphorus content.

**65. Comparison of five methods in determining phosphorus in paddy soils.** Zenaida D. Yadao. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Aug. 1970. 2ℓ. 20p. tables. 20 refs. (Thesis. B.S. in Agriculture, Major in Soils)

The amount of phosphorus, in p.p.m., removed by the Truog method (20-110) was greatest among the other methods, such as the Watanabe (18.5-43.7), Olsen (9.0-45), Bray No. 1 (7.0-17.5), and Bray No. 2 (7.0-19.5). Highest extractable phosphorus was ob-

tained from the Novaliches and the Tamontaka clays, while the lowest, from Brookes clay loam.

631.57:631.56
Fruit, Ripening of.
Ethylene. Acetylene.

**66. Note: Production of ethylene and acetylene during ripening and charring.** Fr. B. Pantastico and D.B. Mendoza, Jr. (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.477-484. graphs, tables. 10 refs.

Studies were made on 7 materials commonly used for ripening fruits and smudging fruit trees. Chromatographic analyses of the $C_2H_4$ and $C_2H_2$ emanating from these charred materials showed that the evolution of the gases is related to the dry matter content and degree of charring of the materials. Also, the degree of charring affect the rate of evolution of the gases; thus, the greater the extent of charring, the higher the amount of $C_2H_2$ evolved as observed with Gliricidia leaves. It was found that ripening is unique to $C_2H_4$ and not to $C_2H_2$; $C_2H_2$ may be considered as a natural by-product of the ripening syndrome.

632.5:632.954
Weeds - Chemical control.
Trifluralin.

**67. Morphological and physiological responses of crops and weeds to trifluralin. I. On the nature of the resistance of Ipomoea triloba** B. Lantican-Mercado, R.L. Talatala and A.M. Baltazar (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.469-476. tables, illus. 4 refs.

The herbicidal effect of 5 p.p.m. trifluralin on *Ipomoea triloba* was manifested by the inhibited growth of hypocotyl-root axis, accompanied by the early maturation of the xylem elements in the hypocotyl and a less defined transition zone. No conspicuous swelling in any tissue and abnormal cell enlargement or multinuclearity were observed unlike in susceptible species such as rice or corn.

632.951:595.72
Insecticides - Injurious effects - Man and animals.
Cockroaches - Control.

**68. Residual toxicity of certain insecticides against adult house cockroaches.** Paulina L. Mojica. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 13p. 5ℓ. graphs, plate, tables. 8 refs. (Thesis. B.S. in Agriculture, Major in Entomology)

The residual toxicities of Sevin 85 W.P. and Megaton had the same duration (5 wks), followed by chlordane (4 wks), and Shell Vapona (1 wk).

633.11:631.52(043)
Wheat - Hybrids.
Wheat - Yield.

**69. First generation line selection of five wheat varieties.** Domingo E. Balneg. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Dec. 1970. 2ℓ. 12p. tables. 9 refs. (Special problem. B.S. in Agriculture)

Seeds of Taichung 31 Nevah Yaar, N.P.-723, C-273, BR-166 sown under Araneta University Foundation conditions germinated within a week. 100 plants were selected from the 1000 plants of each variety. The height of

the plants ranged from 43.5 to 65.8 cm in T-31, 48.5-73.7 in N.Y., 65.9-73.8 in N.P.-723, 66.9-77.5 in C-273, and 68.3-75.7 in BR-166. The average maturity was 74 days for T-31, 79 for N.Y., 82 for N.P.-723, 90 for C-273, and 100 for BR-166. The computed yields in cavans/ha. were 21.75, 29.64, 31.75, 27.89, and 34.91 for T-31, N.Y., N.P.-723, C-273, and BR-166, respectively.

633.11:631.82:631.55(043)
Fertilizers for wheat.
Wheat - Yield.

**70. The fertilizing level of Charter variety of wheat in factorial treatments.** Jose L. Galarosa. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 16p. tables. 9 refs. (Special problem. B.S. in Agriculture)

Varying levels of N and P (30, 60, 90 kg/ha.) and potash (70, 140, 210 kg/ha.) were applied. Results showed that higher levels of N promoted faster growth. Treatments with 60 and 90 kg N combined with P or K or both significantly increased grain yield. Highest mean grain yield obtained was 2036.66 kg/ha. with 60-60-140 treatment. However, the different treatments did not influence significantly the plant height at maturity.

633.15:631.84
Fertilizers for corn.
Corn - Yield.

**71. Response of popcorn to various levels of nitrogen from urea, ammonium sulfate and chicken manure.** Songdej Pachmitr and Clarito C. Dacumos. *CLSU Scientific Journal*, Jan.-March 1970, v.5, no.3, p.138-145. tables. 10 refs.

Experiments on the white popcorn variety showed that treatment with urea and ammonium sulfate promoted higher growth rate and better yield than treatment with chicken manure. The plants responded favorably at the rate of 120 kg fertilizer/ha.

633.18:54.03/.04
Rice - Chemical composition.

**72. Properties of waxy and isogenic nonwaxy rices differing in starch gelatinization temperature.** Bienvenido O. Juliano, Myrna B. Nazareno, and Natividad B. Ramos (International Rice Research Institute, Los Banos, Laguna). *Chemists' Quarterly*, April 1970, v.9, no.1, p.2-23. graph, tables. 32 refs.

Studies were conducted on 12 waxy varieties and 2 pairs of isogenic nonwaxy lines. Results showed that low birefringence end-point temperature (BEPT) was consistently positively correlated with the cooking time of milled rice. BEPT was not correlated with moisture content of steeped grain and hardness scores. Studies on starch granules indicated that BEPT differences did not reflect differences in the physicochemical properties of starch fractions but may be mainly structural differences. Waxy and nonwaxy starches with larger X-ray crystallite size and/or perfection were found to correspond generally to amylopectins of lower intrincic viscosity. Within the same rice species of similar granule size and amylose/amylopectin ratio, the differences in accessibility of starch granules to corroding and dispersing agents were of the same order of magnitude as have been reported for starches from different cereal species.

633.18:631.16
Rice farm management.

**73. A study of the cultural and management practices, cost and returns of palay production in Muñoz, Nueva Ecija.** Socorro D. Ballesteros and Marcelo Roguel. *CLSU Scientific Journal*, Jan.-March 1970, v.5, no.3, p.115-126. tables. 9 refs.

A survey in July-Dec. 1967 showed that of the 150 farms, 145 practised rice fertilization and none employed seed treatment. Most farms adopted the ordinary method of rice planting and only 5 used the Masagana method. All farms employed seed selection and only approved seedboard varieties were grown. As a whole, rice growing is profitable. However, cost production varied from farm to farm as influenced by the type of farming, area, size of farm, labor force and degree of mechanization. It is pointed out that more effective and efficient use of labor and equipment resulted in increased production per unit area.

633.18:631.362(043)
Rice driers.

**74. Design, development and testing of a batch type rice dryer.** Benito C. Gonzalo. Victoneta Park, Malabon, Rizal, Institute of Graduate Studies and Applied Research, Araneta University Foundation, March 1970. 30p. graphs, tables. illus. 21 refs. (Thesis. M.S. in Agricultural Engineering)

The portable batch-type dryer consists of 4 components, namely: 1) a circular rice bin with a capacity of 30 cavans; 2) heat exchanger using solid fuel; 3) fan propelled by an electric motor; and 4) furnace attached to the heat exchanger. 3000 c.f.m. of air at an average drying temperature of 117.3° F can reduce the moisture content of palay from 19 to 14.4% in 4 hrs. The heat exchanger's efficiency is 43.6% with drywood fuel consumption of 17 kg/hr, and an extraction efficiency of 51.77%. Results of the tests as per design are presented in tabulated forms and in figures.

633.18:631.52
Rice Varieties. Rice - Yield.

**75. $C_4$-63G now available.** Leonila B. Flores. *Monthly Bulletin* (College of Agriculture, University of the Philippines, College, Laguna), March 1970, v.35, no.10, p.4.

$C_4$-63G is a new, improved rice variety selected from the original $C_4$-63 variety. It is medium short, resistant to lodging and does not easily succumb to leaf blight and blast diseases. It has more uniform plant height and maturity than the parent variety. It yields an average of 100 cavans/ha.

633.18:631.52
Rice - Varieties. Rice - Yield.

**76. $IR_{20}$ and $IR_{22}$ - new rice varieties.** *IRRI Reporter*, Jan.-Feb. 1970, v.6, no.1, p.1-3. graphs, table, illus.

$IR_{20}$ and $IR_{22}$ developed by the International Rice Research Institute (IRRI) in College (Laguna), resembled $IR_8$ in plant type and grain yield potential, and are highly responsive in grain yield to N application. Both varieties have better grain quality and higher levels of disease resistance than $IR_8$.

$IR_{20}$ has performed well in the Philippines and in East Pakistan. $IR_{22}$ is currently being evaluated in most tropical rice growing countries and

further purification of the seed is in progress at IRRI.

633.18:631.52
Rice culture. Rice - Breeding.

**77. Catalog of rice cultivars and breeding lines (Oryza sativa L.) in the world collection of the International Rice Research Institute.** Los Banos, Laguna, International Rice Research Institute, April 1970. 281p. 13 refs.

The catalog summarizes the information on the seed source and origin, morphologic features, agronomic traits, disease and insect reactions, and stem borer incidence of 8628 viable varieties. A large number of breeding lines are included since many may have potentials in varietal development. The catalog is a useful reference in the choice of seed material for research in screening a number of genotypes for desired traits.

633.18:631.52(043)
Grain - Characterization.
Rice - Varieties.

**78. Further studies on the grain characteristics as a basis of identification of 20 rice varieties.** Ruben A. Limos. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 3ℓ. 37p. plates, tables. 13 refs. (Thesis. B.S. in Agriculture, Major in Agronomy)

Varieties were collected from different regions of the country. The Cabigan key, consisting of 23 grain characters in 8 groups, was modified to include only 16 characters in 6 groups. The latter characters were found sufficient for identification.

633.18:631.531
Rice - Seedlings - Chemical treatment.

**79. The response of some upland rice varieties to NaCl at the seedling stage.** B.T. Mercado and C. Malabayabas (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.460-468. graphs, tables. 17 refs.

Of the 6 rice varieties tested, Azmil and HB-Da showed fairly good growth irrespective of the salt level and stage of development, followed by Azucena and MI-48. Dinalaga and Palawan varieties exhibited the poorest development. The 2-leaf stage was more sensitive to NaCl than the 4-leaf and tillering stages. In all the varieties tested, tolerance to salinity increased with age.

633.18:631.552(043)
Rice - Yield.

**80. The comparative study on the yielding capacity of eight strains of A.U.F. 66 (IR-8 x Siam) rice.** Arturo M. Mata. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 3ℓ. 17p. tables. 14 refs. (Thesis. B.S. in Agriculture, Major in Agronomy)

A.U.F. 66 Strain No. 3 produced the highest followed by Strain Nos. 13, 7, 12, 14, 6, 11, and 16. The differences in yield between strains were highly significant.

633.18:632.3
Rice - Disease resistant varieties.

**81. Varietal resistance to bacterial leaf streak disease of rice in the Philippines.** S.H. Ou, P.G. Franck and S.D. Merca (International Rice Research Institute, Los Banos, Laguna). *Philippine Agriculturist*, June-July 1970, v.54, nos.1-2, p.8-32. graphs, tables, illus. 8 refs.

A total of 1118 varieties were tested for resistance to different strains of the bacterium isolated from various rice fields. Results showed that most of the varieties were moderately resistant and some were susceptible. Only 140 were resistant and several strains of wild *Oryza* sp. were highly resistant, japonica had about the same range of reactions as indica varieties. The bacterial strains varied greatly in virulence and produced different reactions on the varieties tested.

633.18:632.3
Rice bacterial leaf blight.

**82. Some studies on the transmission of bacterial blight of rice through seed.** Sunetra Eamchit and S.H. Ou (Rice Dept., Ministry of Agriculture, Thailand and Plant Pathologist, IRRI, Los Banos, Laguna, Philippines, respectively). *Philippine Agriculturist*, June-July 1970, v.54, nos.1-2, p.33-45. graphs, tables, illus. 12 refs.

Transmission studies of the virulent strains of *Xanthomonas oryzae* were conducted on JC-70 rice variety. Results showed that the dissemination and distribution of the rice blight bacterium through seed appears unlikely or unimportant in the tropics. The viability of *X. oryzae* on or in a seed in nature is short at high temperatures as in the tropics.

633.18:632.5
Weeds.

**83. Population of weed seeds in a lowland rice field.** M.R. Vega and J.N. Sierra (Assoc. Prof. and Instructor, respectively, College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, June-July 1970, v.54, nos.1-2, p.1-7. graphs, tables. 4 refs.

A 3-yr study revealed 1997 weed seedlings from a gallon of soil stirred at intervals and 1605 from unstirred culture. The sedges comprised approximately the same percentages of the total number in both stirred and unstirred soil. The weed population was mainly *Fimbristylis milacea* (L.) Vohl and a small percentage of *Scirpus supinus* L., *Cyperus* sp. *Echinochloa crus-galli* (L.) Beauv., and *Sphenoclea zeylanica* (L.) Gaertn.

633.18:632.7:535.21
Insects, Effect of gamma rays on.
Rice stem borers.

**84. Some effects of gamma radiation on the striped stemborer of rice, Chilo suppressalis Walker.** E.C. Manoto, G.B. Fernandez and G.B. Viado (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.177-191. graph, tables, illus. 13 refs.

Of the different metamorphic stages of striped rice stemborer (*Chilo suppressalis* Walker) exposed to gamma radiation, the pupa was found most radio-resistant, the young immature stages being more susceptible than older stages. 5 Kr at 533 r/min was sufficient to sterilize the larvae and

pupae, and this resulted to some forms of abnormalities on the subsequent adults. Also, radiation reduced egg hatch, survival, emergence and fertility of the insect. The reproductive capability of the progenies was impaired, which may be the result of genetic damage produced by radiation on the parents.

633.18.001.5
Rice - Research.

**85. Data transformation in rice research.** K.A. Gomez and E.V. Tipa (International Rice Research Institute, Los Banos, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos. 8-9, p.485-491. tables. 11 refs.

Grain yield, percentage and count data in rice experiments were tested for conformity to the assumptions underlying the analysis of variance. Violation of the assumptions caused by the association between the treatment mean and variance was detected in all percentage and count data, but not in grain yield. Of the 3 types of transformation evaluated, logarithmic transformation was found most promising for both percentage and count data.
2 simplified testing methods are recommended for detecting the departure of data from the required assumptions.

633.3:631.552(043)
Soybeans - Yield.

**86. The yield performance of Yellow Gatan, Beyeloxi-256, E.G. No. 1 and Improved Pelican varieties of soybeans.** Isabelo B. Yabes. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970, 3ℓ. 17p. tables. 8 refs. (Special problem. B.S. in Agriculture)

The highest yielder among the varieties was B-256, 1224.99 kg/ha., followed by E.G. No.1, 1058.30, Improved Pelican, 1034.99 and Yellow Gatan, 888.32. E.G. No.1 matured in 71 days, Improved Pelican, 78 days, while both the B-256 and Yellow Gatan, 94 days.

[633.3+633.11]:631.531(043)
Seeds - Viability.

**87. Tetrazolium test as indicator of soybean and wheat seed viability.** Prasatporn Charernphonchune. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970, 4ℓ. 20p. tables, illus. 3 refs. (Special problem. B.S. in Agriculture)

Seeds stored for more than 1 yr were used in this study. The preparation of the staining solution and the method of seed treatment are described, and the staining patterns interpreted. Accuracy of the interpretation was verified through the germination test. Results revealed that soybean seeds had higher potential than actual viability values, while in wheat, the finding was reverse.

633.49:631.531 633.49:631.552
Sweet potato cuttings - Storage.
Sweet potatoes - Yield.

**88. The influence of storing cuttings on the yield of sweet potato tubers.** Bernardo B. Salvadico and Crisostomo M. Marasigan (Mindanao Institute of Technology, Kabacan, Cotabato). *MIT Research Journal*, Jan.-June 1970, v.3, no.1, p.1-6. graph, table, illus. 7 refs.

Experiments with the Kabacan sweet potato variety showed that cuttings planted right after harvesting and those stored for 1-2 days significantly gave higher yields than cuttings stored for longer than 2 days. The yield

decreased as storage period of cuttings were prolonged to 6 days. The number and length of tubers varied significantly with storage, and it is advised that for production of tubers, cuttings for planting should not be stored for more than 2 days. The diameter of tubers was not influenced by the duration of storage.

633.5:631.52(043)
Hibiscus cannabinus.

**89. A study of the variability of some agronomic characters of spineless kenaf strain A-59-80.** Armanda G. Barachian. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Aug. 1970. 2ℓ. 11p. tables. 4 refs. (Thesis. B.S. in Agriculture, Major in Agronomy)

Results showed that an average height of strain A-59-80 was 227.40 ± 2.35 cm with a coefficient variability of 10.34 ± 0.01%. Its mean stem diameter was 1.51 ± 0.01 cm with 9.18 ± 0.01% variability. Mean fiber weight was 6.30 ± 0.18 g, and the mean seed weight was 4.49 ± 0.33 g with 28.88 ± 0.02 and 74.16 ± 0.05% variability, respectively. Flowering started 126 days from the time the seeds were sown, after which mature capsules formed in 29 to 31 days.

633.52:631.531(043)
Hibiscus cannabinus.

**90. Two, three, five-triphenyl tetrazolium chloride as an indicator of the viability of kenaf seeds.** Vadcharin Chantagul. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 3ℓ. 11p. tables, illus. 7 refs. (Special problem. B.S. in Agriculture)

The preparations, treatments, and interpretations of the staining patterns are given. Tetrazolium and germination tests revealed 65% potential and 80% actual viabilities, respectively.

633.52:631.55(043)
Hibiscus cannabinus.

**91. Effect of the month (July) of planting on the growth, yield, and tensile strength of fiber of spineless kenaf (hibiscus cannabinus linn.).** Nelly I. Yere. Victoneta Park, Malabon Rizal, Araneta University Foundation, 1970. 3ℓ. 15p. plates, tables. 6 refs. (Thesis. B.S. in Agriculture, Major in Agronomy)

Results of the study showed that in 115 days, the plants were 224.7 ± 1.988 cm high, yield 3,000 kg of dry fiber/ha., with a tensile strength of 14.199 kg/g meter.

633.61:632.4
Sugar cane - Disease and pest resistant varieties.

**92. Resistance of some promising Phil varieties to smut disease of sugarcane.** I.B. Cano and J.R. Rivera (Philippine Sugar Institute, Quezon City). *Philippine Sugar Institute Quarterly*, April-June 1970, v.16, no.2, p.9-11. tables. 1 ref.

Forty-three Phil varieties belonging to the 1954-1960 series were tested both in the plant and ratoon crops and compared with 3 standard varieties. Except for 3 varieties which were rated as moderately susceptible, all varieties showed average to very high resistance to smut. 4 varieties were rated outstanding and moderately to highly resistant, namely, Phil 5333, 5460, 56226 and 58260. Other varieties showed great promise for commercial planting, namely, Phil 5452, 5757, 5698, 5733, 58451 and 58234.

633.88:615.7
Botany, Medical.

**93. Screening of Philippine plants for anticancer activity.** Victoria A. Masilungan, Rogelio N. Relova and Josefina S. Raval (National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Dec. 1967(1970), v.96, no.4, p.393-398. tables. 6 refs.

A total of 1,179 extracts from 142 samples of 120 species of plants belonging to 58 families were screened for anticancer activity. 36% of the samples tested showed anticancer activity; 11 yielded anticancer activity with distilled water as extractant; 24 with 1% acetic acid; 16 with 1% hydrochloric acid; 17 with 5% solution of sodium bicarbonate; 18 with ether; 20 with methanol; 15 with ethanol; 12 with petroleum ether; and 9 with acetone.

633.91:631 577
Rubber (hevea) - Tapping.

**94. Performance test of local and introduced para rubber clones during the first tapping year in the Mindanao Institute of Technology.** Ruben T. Barraca (Agriculture Dept., Mindanao Institute of Technology, Kabacan, Cotabato). *MIT Research Journal,* Jan.-June 1970, v.3, no.1, p.7-11. graph, table. 4 refs.

The yield performance of the 5 foreign clones were better than the 4 locally developed clones. PB 86 gave the highest yield among the foreign clones, and MIT 2, among the locally developed. Monthly fluctuation in yield of the different clones was observed as affected by season and wintering habit of the plants. The effect of wintering was more serious in TJir 1 and MIT 2 clones than in PB 86. High rubber production occurred in June-Oct.

634.0.2:582.937:631.53
Rauwolfia caffra.

**95. Propagation of Rauwolfia caffra in Benguet Province.** B.F. Noble (Masinloc Forest Research Substation, Masinloc, Zambales). Manila, Bureau of Forestry, 1970. 2p. (Research note no. 74)

Of the three methods used in propagating the species, namely, by seeds, cutting, and coppice, the cutting method gave the best results.

634.0.2:582.949.1:631.53(914)
Teak propagation.

**96. Growing Philippine teak (Tectone philippinensis) in Mt. Makiling, College, Laguna.** Maximino L. Generalao and Felipe Lapitan (Los Baños, Forest Experiment Station, College, Laguna). Manila, Bureau of Forestry, 1970. 2p. table. (Research note no. 75)

Results of the study showed that Philippine teak can be propagated successfully by either direct seeding, bareroot wildlings and cuttings, the percentage survival of which were 78.57, 45.45 and 42%, respectively. The average periodic and mean annual growths of each kind of planting material were practically the same, except in the mean annual growth of the bareroot wildlings, which was 25% more than the others.

634.0.4
Forests and forestry.

**97. Determining merchantable logs from cull trees of dipterocarps inside the Bislig Bay Lumber Company, Inc.** Isidoro B. Siapno and Eulogio T. Tagudar.

Manila, Forest Research Division, Bureau of Forestry, July 1970. 16p. tables. 7 refs. (Occasional paper no. 36)

Of the 124 cull trees, 37 were felled and no single log was obtained, whereas the other 87 cull trees with a net volume of 385.81 cu.m. yielded sound logs which were found usable for the manufacture of plywood, pulpwood and lumber. An average tree yielded a net volume of 3.11 cu.m. Miyapis had the most defect indicators, but produced the most number of sound logs based on a tree per tree count. Destruction to the residual stand was negligible because for every 6 cull trees that were felled, only one marked healthy residual was destroyed and for every 2 cull trees felled, only one marked dipterocarp was injured in spite of the difficulty of determining the direction of fall.

634.0.8:632.7
Wood - Diseases and pests.

**98. Relative susceptibility of some species of Philippine woods to powder-post beetles.** Mamerto L. Garcia. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), March-April 1970, v.5, no.2, p.1-5. table. 3 refs.

The presence of pores of exposed vessel openings on the transverse and longitudinal surfaces of hardwood lumber, and moisture and starch content were found to favor infestation of powder-post beetles. Of the 31 wood species tested, the most susceptible were bagtikan, white lauan and red lauan. The diameter of the bolt was noted to be indirectly proportional to the degree of infestation.

634.4:663.81
Mango juice, Canned.

**99. The effect of temperature and time of storage on the nutritive value and acceptability of fortified canned mango nectar.** Estelita M. Payumo, Leonarda M. Pilac and Pacita L. Maniquis (FRL, National Institute of Science & Technology, Manila). *Philippine Journal of Science,* Dec. 1967(1970), v.96, no.4, p.377-385. graphs, tables. 21 refs.

Fortified canned mango (*Mangifera indica* Linn.) nectar was prepared and stored at refrigerated (4-5°C) and room (29-30°C) temperature for a period of 12 mo. Results showed that retention of the added ascorbic acid decreased as time and temperature of storage increased. An appreciable loss of carotene at either range of storage temperature was observed. Acidity and color intensity remained stable regardless of time and storage temperature. Sensory evaluation in terms of eye appeal and palatability did not change significantly at both storage temperature.

634.45:631.531
Rambutan. Indolebutyric acid.

**100. Some factors associated with the rooting of rambutan (Nephelium lappaceum Linn.) cuttings under controlled mist. I. Effects of indolebutyric acid and grades of sand on rooting.** J.S. Imlan. *MIT Research Journal,* Jan.-June 1970, v.3, no.1, p.20-31. tables. 27 refs.

Experiments showed the indolebutyric acid (IBA) treatment significantly increased percentage of rooting and survival of rooted cuttings, induced production of longer roots/cutting and decreased rooting time. However, 50

p.p.m. IBA depressed rooting and percentage survival. Different magnitudes of response were observed among the rooting media used, with Grade I (0.5-1 mm) sand being the most efficient.

634.58:631.531(043)
634.58:631.82(043)
Peanuts - Yield.

**101. Effects of inoculation and liming on the growth and yield of peanut planted at different spacings.** Rustico B. Santos. Victoneta Park, Malabon, Rizal, Araneta University Foundation, June 1970. 7ℓ. 55p. tables. 19 refs. (Thesis. Master of Science, Major in Agronomy)

Results of the experiments showed no significant increase in plant height of both inoculated and limed CES 101 peanut variety. However, there was a significant increase in the number of marketable pods/hill. Those planted at 20 cm spacing were taller and had higher yields/ha. Plants inoculated, limed and spaced at 20 cm consistently yielded more marketable pods and seeds /ha. Inoculation and liming had no adverse effects on the growth and yield of peanut.

634.616:581.3
Macapuno - Embryology.

**102. The growth and development of coconut "makapuno" embryos in vitro. II. Increased root incidence and growth in response to media composition and to sequential culture from liquid to solid medium.** H.Y. Balaga and E.V. de Guzman (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* March 1970, v.53, no.10, p.551-565. tables, illus. 20 refs.

Two basal media, one containing Murashige and Skoog nutrient salts (MO) and the other, White's nutrient salt modified by using the Fe-EDTA of Murashige and Skoog (Wo) were used. It was found that a longer period than 6 wks in liquid culture was detrimental to shoot growth; root emergence, however, appeared to be hastened by a longer culture in liquid. The composition of the initial medium significantly affected embryo development. Satisfactory results in terms of shoot and root growth were obtained at the transplant medium Wo solid, with White's nutrient salt in the initial liquid medium. However, the addition of coconut water and indole-3-acetic acid at 20 p.p.m. inhibited root and shoot growth whether added singly or in combination.

634.616:581.3
Macapuno - Embryology.

**103. The growth and development of coconut "makapuno" embryo in vitro. III. Resumption of root growth in high sugar media.** E.V. de Guzman, A.G. del Rosario and E.C. Eusebio (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist,* March 1970, v.53, no.10, p.566-579. graph, tables. illus. 11 refs.

Makapuno embryos grown initially in liquid modified White's basal medium showed limited root development in different solid media with 2% dextrose; with 8% sugar extensive root development was noted without adverse effect on the shoot. The response to high sugar was modified by the presence of growth substances in solid culture, stage at transplant, pruning of the shoot and addition of sugar in indole-3-acetic acid medium.

634.772:632.4(914)
Bananas - Diseases and pests.

**104. Black leaf streak disease of bananas in the Philippines.** J.C. Hapitan, Jr. and T.T. Reyes (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, June-July 1970, v.54, nos. 1-2, p.46-54. table, illus. 15 refs.

Studies revealed that the disease appeared throughout the year and the severity of infection varied from mild during the dry season to severe during the wet season. The causal fungus was identified as *Mycosphaerella fijiensis*. The most important commercial varieties namely, Saba, Lakatan, Giant Cavendish, Bungulan and Latundan were found susceptible to the disease.

634.84:631.53/.531(043)
Phanera integrifolia cummingiana.

**105. Trial planting of Agpoi by cuttings (Phanera integrifolia (Roxb.) Benth. ssp. cummingiana (Perk.) de Wit.).** Efren S. Sumajit. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ, 16p. tables, plates. 2 refs. (Special problem. B.S. in Forestry)

100 cuttings of varying diameter classes (0.5-2 cm) were planted in slanting positions at a depth of 15-20 cm. Of the 16 sprouted cuttings, only 7 survived for transplanting. The percentage of survival increased as the diameter of the cuttings increased.

Further investigation is suggested due to the unsatisfactory results obtained.

635.25:631.548
Water requirements of plants.
Onions.

**106. Consumptive use of water by onion under CLSU conditions.** Gerardo C. de Velez and Rodolfo C. Undan. *CLSU Scientific Journal*, July-Dec. 1970, v.6, no.1, p.14-25. tables. 10 refs.

Results of experiments conducted in Feb.-May 1971 showed that the rate of water use was minimal during the early stage of development; the peak consumptive use was registered 8 wks after transplanting when the bulbs were about to be fully developed. The water demand after this period decreased as a result of reduced transpiration during the maturity stage. Percolation plus consumptive use rates amounted to 46.28 cm. The increase in the consumptive use of water was affected by high temerature, intense sunlight, high winds, and low relative humidity.

The data obtained may be used in the preparation of an irrigation program for application on a systems-wide basis.

635.64:631.541:632.3
Solanaceae - Disease and pest resistant varieties.
Grafting.

**107. Grafting for the control of bacterial wilt in solanaceous vegetables.** R.L. Villareal, E.S. Sarreal, N.G. David and B.T. Pamplona (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, March 1970, v.53, no.10, p.527-538. tables, illus. 9 refs.

Experiments showed that grafting can control bacterial wilt. Tomato and eggplant scions were successfully grafted to either tomato College Selection 1169 and Hawaii 2 or eggplant

College Selection 64-43-36 stocks. Successful grafting of tomatoes was attained using 21-day-old scions and stocks. However, pepper (DPI) root stocks could not be grafted to either tomato or eggplant. No measurable effects were observed on the horticultural characters of the scions indicating the possibility of using the 3 rootstocks.

635.64:632.3
Tomatoes - Diseases and pests - Control.
Pseudomonas solanacearum.

**108. Cross protection to pseudomonas solanacearum in tomato.** R.L. Villareal, R.F. Santiago, D.V. Viri and F.C. Quebral (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, March 1970, v.53, no.10, p.519-526. tables. 5 refs.

Four-wk-old seedlings of Yellow Plum, College Selections 2029 and 1169 were inoculated with different combinations of bacterial strains using the root-dip techniques at 24-hr interval. Results showed that cross protection reduced the severity of bacterial wilt disease. Avirulent abaca and ginger strains gave equally significant reduced infection, suggesting that in applying cross protection either strain may be used.

635.656:631.5(043)
Beans, Mung.

**109. A study on the growth and other characteristics of Wonder variety of mungo (Phaseolus aureus Roxb.).** Panya Ekmahachai. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 25p. plates, tables. 11 refs. (Thesis. B.S. in Agriculture, Major in Agronomy)

Results of the study conducted during the wet season showed that; 1) flowering was not uniform; 2) maturity of the pods was 70 days from sowing; 3) average height of the plants at 2-wk interval was 13.1 ± 0.09, 18.1 ± 0.40, 32.5 ± 0.49, and 40.9 ± 0.63 for the 2nd, 4th, 6th, and 8th wk, respectively; 4) average number of branches, pods, and seeds/plant was 3.16 ± 0.10, 7.1 ± 2.1 and 70.7 ± 2.02, respectively; and 5) yielded 476.2 kg/ha.

Wet season culture of the variety under Araneta University Foundation conditions is impractical. It is suggested that dry season culture be tried.

635.656:632.85
Beans, Mung. Trifluralin.

**110. Morphological and physiological responses of crops and weeds to trifluralin. II. Physiological responses of mung bean.** Beatriz L. Mercado, Aurora M. Baltazar and Julian N. Sierra (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, March 1970, v.53, no.10, p.580-587. tables, illus. 8 refs.

Trifluralin at a concentration as low as 1 p.p.m. inhibited the growth of young mung bean (*Phaseolus aureus* L.) var. CES-14 seedlings and caused swelling. Older seedlings did not exhibit swelling of the hypocotyl and recovered faster from the herbicidal effects than younger ones. However, a decrease in fresh weight, dry weight and protein/unit plant was observed, but there was no change in protein/unit dry weight. Compared with other species, mung bean is considered moderately resistant to trifluralin.

635.97:631.53
Plant propagation.
Plants, Ornamental.

**111. Effects of alpha-naphthaleneacetic acid of different concentrations on rooting of Doña Aurora cuttings.** Laura E. Umali. *Araneta Journal of Agriculture,* April-June 1970, v.17, no. 2, p.109-116. tables. 4 refs.

Trial propagation of Doña Aurora using softwood, semi-hardwood and hardwood cuttings was undertaken. Of the 25 hardwood cuttings treated with 600 p.p.m. alpha-naphthaleneacetic acid, 80% rooted after 3 mo. The softwood and semi-hardwood treated cuttings dried up after 1.5 mo.

## ANIMAL HUSBANDRY AND PRODUCE

636.1.082(043)
Horse breeding.

**112. The rate of growth and the development of Philippine Pony x Shetland Pony.** Loreto I. Lasconia. Victoneta Park, Malabon, Rizal, Araneta University Foundation, April 1970. 3ℓ. 29p. plates, tables. 6 refs. (Thesis. B.S. in Agriculture, Major in Animal Husbandry)

Skewbald Colt No. 1 (75% Philippine), Piebald Filly No. 1 (75% Shetland), Skewbald Filly No. 2 (full sister of Colt No. 1), and Skewbald Colt No. 2 (full brother of Filly No. 1) were used in the study. Results showed that the formula ("hearth girth squared x length over 300 + 50") used for mature animals gave an initial weight for Colt No. 1 of 20.0 kg, Colt No. 2, 16 kg, Filly No. 1, 17.0 kg, and Filly No. 2, 23.0 kg. Colt No. 1 and Filly No. 2 were tall, bigger hearth girth and longer foreheads; Colt No. 1 was longer than Colt No. 2 but sickly and died at 17 mo. old. All the animals had the same ear length. After 6 mo., Filly No. 2 had the fastest growth. Filly No. 1, although stopped growing after 20 mo., was 2 in. higher than the mother, 2 in. shorter than the father. Colt No. 2 and Filly No. 2 continued growing.

636.2:591.16
Cattle - Performance records and registration.

**113. Evaluation of the reproductive performance of the DTRI herd from 1964 to 1968.** J.P. Abilay, E.G. Wagelie, O.A. Palad and J.O. Gonzaga. *Philippine Agriculturist,* March 1970, v.53, no. 10, p.604-615. graphs, tables. 9 refs.

The animals under study were mostly Holstein-Friesian and Red Sindhi crosses. The average age of the cows at first calving was 33.8 mo. and conception rate was 1.89 services/calf born. In 5 yrs, an average calf crop of 85.8% was obtained. There was a significant direct relationship between the number of days the cows were open and calving interval. More animals in heat were observed during Dec.-May. Likewise, more calvings occurred in Nov.-Jan. However, there was no trend in either the mating or calving seasons of the herd. The sex ratio of the calves born was 1 female for every 1.2 males.

636.2.081
Cattle, Identification of.

**114. Freeze branding cattle.** A.B. Santiago, C. Bercades, J. Lopez, N. Abalos, Jr. and T. Tablizo. *Araneta Journal of Agriculture,* April-June 1970, v.17, no.2, p.138-152. plates, tables. 8 refs.

Freeze branding was done on 24 crossbred cattle, 30-794 days old, at the Araneta University Foundation, Beef Cattle Project in Malabon (Rizal). It was found that irrespective of contact time, scabs were formed 3-6 days after branding but were sloughed off after 12-13 days. White hairs were noted growing earlier among younger animals and complete repigmentation in all cases was noted 94-100 days after branding. Under the University conditions, branding during the cooler months, particularly Oct., proved better and contact time of 20-40 sec is recommended.

636.2.085
Cows - Feeding - Experiments.
Milk - Production.

**115. The effects of supplementing pasture feeding with concentrate on the milk yield of Indian Nellore cows.** Renato Cucal and Constante A. Luna (Mindanao Institute of Technology, Kabacan, Cotabato). *MIT Research Journal*, Jan.-June 1970, v.3, no.1, p. 12-19. tables. 7 refs.

Experiments conducted at the Dairy Project of the Mindanao Institute of Technology, Kabacan (Cotabato) showed an increase in milk production by 16.6 kg milk in 80 days when ground corn in cobs was given as supplement. Based on the production of milk, about 4.81 kg corn cob concentrate is needed to produce 1 kg milk.

636.293:591.485(043)
Ear (animals) - Physiology - Carabaos.

**116. Angio-architecture of the external ear of the Philippine carabao.** Antonio B. Diaz, Jr. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, April 1970. 3ℓ. 23p. plates, illus. 3 refs. (Thesis. Doctor of Veterinary Medicine)

Based on 12 adult animals, the gross features of the bubaline ear generally resemble those of the bovine. There are no obvious differences in the ears between the sexes or in the same animal.

636.4:591.111(043)
Blood - Analysis and chemistry - Swine.

**117. A preliminary study on the glucose, total proteins, total cholesterol and electrolyte in the blood of swine.** Leopoldo E. Beja and Podrigo V. Javierto. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 21p. tables. 7 refs. (Thesis. B.S. in Agriculture, Major in Animal Husbandry)

A 1-yr-old boar, three 1-yr-old gilts, one 4-yr-old sow (all Duroc-Landrace x Berkshire), and one 8-mo.-old gilt (Duroc x Minnesota No. 1) were used in the study. Litmus paper tests on the blood samples from the veins of the ears of the animal showed that 2 gilts had alkaline blood. The boar had the highest glucose content (79.5 mg), while the sow, the lowest (66.0 mg). The latter had the highest Ca (6.9 mg/ℓ) and total protein (7.1 mg). One 1-yr-old gilt had the lowest protein (6.5 mg); K (5.5 meq/ℓ); and Ca (5.1 meq/ℓ). The 4-yr-old sow had the lowest cholesterol (26.0 mg).

636.4:591.134
Swine - Carcasses.
Swine, Weight and measurements of.

**118. Backfat thickness for weight adjustment factors in growing pigs.** S. Trakulchang, K.A. Gomez, A.A. Gomez, A.A. Ovejera and E.M. Rigor. *Philip-*

*pine Agriculturist*, Jan.-Feb. 1970, v.53, nos 8 9, p.425-428. table 8 refs.

Data on weight and backfat thickness of 120 individually-fed pigs of different strains about 120-210 days old were used in the study. The strains included Philippine pig, Philippine pig x Landrace, Philippine pig x Landrace x Yorkshire, Philippine pig x Landrace x Yorkshire interse and Yorkshire. Regression analyses with weight as independent variable and backfat thickness as dependent variable revealed highly significant linear trends for all strains. The regression lines were found to have widely different weight-intercepts such that the proposed adjustment method based solely on equality of intercepts is not appropriate for adjusting backfat thickness for weight. The homogeneity in the regression coefficients, however, seemed to point to the suitability of adjustment procedures utilizing homogeneous slopes rather than intercepts.

636.4:591.134
Swine, Age of.
Swine, Weight and measurements of.

**119. Weight for age adjustment factors in growing pigs.** S. Trakulchang, K.A. Gomez, A.A. Gomez, A.A. Ovejera and E.M. Rigor. *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.429-439. graphs, tables. 18 refs

Data on weight were collected from 100 individually-fed pigs 56 days to 7 mo. old. Regression analysis showed a highly significant linear relationship between age and weight for all 10 sex-train groups Highly significant differences were detected in the slopes of the regression lines. However, no significant differences in the age intercept were found within the group. A procedure for adjusting weight to a common age (154 days) is given. Also, some methods of estimating age intercept were evaluated for precision and practicability.

636.4.082(043)
Insemination, Artificial - Swine.
Swine - Performance records and registration.

**120. A study on the slope of regression line of weight, heart girth, and length of body of 75% Duroc x 25% Berkshire hogs produced by artificial insemination with the use of fresh semen.** Mauro N. Maclan. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 2ℓ. 16p. tables, illus. 6 refs. (Thesis. B.S. in Animal Husbandry)

Nine sucklings showed positive regression, with increase of 1.34 cm in heart girth and 1.45 cm in body length/kg body weight and 0.77 cm in body length/cm increase in hearth girth.

636.4.082(043)
Swine breeding.
Swine - Performance records and registration.

**121. A study on the slope of regression line of weight, heart girth, and length of body of Yorkshire x Landrace pigs produced by natural mating.** Bienvenido Manrique. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 2ℓ. 15p. tables. 6 refs. (Thesis. B.S. in Animal Husbandry)

Nineteen piglets gave positive values on all correlations made. For every kg increase in weight, there was a corresponding increase of 3.98 cm in heart girth and 5 24 cm in length of the body; for every cm increase in

heart girth, an increase of 1.02 cm in length of the body.

636.4.084
Swine - Effect of exercise.
Feed utilization efficiency - Swine.

**122. Effects of voluntary and forced exercise on growth rate and feed efficiency of growing-finishing pigs.** F.A. Salayog and R.B. Puyaoan (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.454-459. tables. 10 refs.

Results of the experiment on 24 weanlings (12 Duroc x Berkshire and 12 Duroc) showed that pigs allowed to exercise voluntarily consumed more feed and had higher average weight gain than those forced to exercise although the differences were insignificant. Pigs allowed to exercise attained 90 kg liveweight in 162 days as compared to 170 days for those forced to exercise,

636.4.085
Legumes as feeding stuff.
Methionine.

**123. Studies on Philippine leguminous seeds as protein feeds. III. Methionine supplementation of local bean diets.** J.A. Eusebio, A.I. Vergel de Dios, R.R. Gonzales, P.F. Alcantara and A.C. Feliciano. *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, no.8-9, p. 440-445. tables. 12 refs.

Feeding experiments were conducted on 30-day-old pigs. Results showed that supplementation of dl-methionine in paayap and tapilan diets promoted higher weight gain and feed efficiency than those fed without methionine supplementation. Methionine also improved protein digestibility by 25.7% in tapilan and 12.4% in paayap. However, pigs on milk had higher digestibility for dry matter and protein, and higher weight gain than those fed on methionine-supplemented diets.

636.4.085 636.4:591.16
Reproduction - Nutritional aspects-Swine.

**124. Plane of nutrition. III. Effect of corn silage feeding on the reproductive performance of sows.** M.G. Supnet and J.A. Eusebio (Dept. of Animal Husbandry, College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, June-July 1970, v.54, nos.1-2, p.60-68. tables. 20 refs.

Feeding experiments were conducted on 48 crossbreed Berkshire x Landrace x Duroc Jersey sows and gilts. Low and high energy diets with or without fish meal were given. Corn silage was added at 70% by weight of the total ration in the low energy diets. Sows fed the low energy diets farrowed and weaned significantly more pigs, and litter size at birth and at weaning was significantly higher than those fed with high energy diets. However, the average birth weight and weaning weight of the litter were higher in the high energy fed-group than in the low energy fed-group. Sows fed with fish-supplemented diets had more litters than sows fed on an all plant protein diet. No significant difference in growth rate and postnatal mortality was noted in the 3 farrowing cycles of the low energy-fed sows as compared to those of the high energy-fed sows.

636.4.085:633.17
Feeding and feeding stuffs - Sorghum.

**125. The feeding value of grain sorghum for pigs.** P.F. Alcantara, E.M. Rigor, J.C. Miller and V.G. Argañosa (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, March 1970, v.53, no.10, p.588-603. tables. 31 refs.

Comparative study on the feeding value of whole and ground sorghum, corn, and commercial feeds was conducted on 36 weanling female pigs, with an average age of 71 ± 2.38 days. Pigs fed with whole sorghum ration, had a significantly higher feed intake than those fed with ground corn and ground sorghum. However, ground corn and ground sorghum promoted significantly higher liveweight gain. Hogs fed with ground sorghum had a significantly lower primal cut yield, and percent ham and loin. Self-fed pigs had the highest daily gain and feed intake.

636.4.088
Swine - Carcasses.

**126. Meat animal and carcass evaluation. I. Relative proportions and values of the different wholesale cuts of pork.** V.G. Argañosa, P.F. Alcantara R.A. Icasas and E.M. Rigor (College of Agriculture, University of the Philippines, College, Laguna). *Philippine Agriculturist*, Jan.-Feb. 1970, v.53, nos.8-9, p.446-453. tables, illus. 4 refs.

Fifty hogs (Yorkshire x Landrace x Philippine pigs) with an average slaughtered weight of 87.8 ± 0.22 kg were used in the study. Results showed that the heaviest and most expensive cuts were obtained from the ham and loin representing 47.5% of the carcass value and 35.9% of the chilled carcass weight. The lean cuts represented 51.9% of the chilled carcass weight and 65.3% of the total chilled carcass value.

A repeatability estimate ranging from 0.26 to 0.92 for all cuts, except the neck bone, was observed. The total weight and percent lean cut from the right did not differ significantly from those of the left side carcass, whereas the right side carcass was significantly heavier than the left side.

636.4.088
Swine, Weight and measurements of.
Swine - Carcasses.

**127. Backfat thickness as measured in live hogs.** V.G. Argañosa. *Better Poultry and Livestock*, Sept. 1970, v.12, no.1, p.14, 16-17. illus.

Backfat thickness is measured by inserting a graduated metal ruler thru the fat layers over the first rib, last rib and the last lumber vertebrae, about 4 to 5 cm away from the midline. Measurement is best recommended when the animal weighs about 90 kg liveweight.

636.5:615.779(043)
Antibiotics in poultry nutrition.

**128. Studies on broiler production: 1. The effects of colistin sulfate on final weight, feed conversion and mortality.** Victorino Panis Aspiras, Jr. Diliman, Quezon City, College of Veterinary Medicine, University of the Philippines, July 1970. 3ℓ. 15p. tables. 8 refs. (Thesis. Doctor of Veterinary Medicine)

Colistin sulfate, given at the rates of 1,000 I.U. injected subcutaneously and intramuscularly, and 2,000,

000 I.U. mixed with the drinking water, decreased mortality significantly. However, the antibiotic did not give any significant differences in the feed conversion rates and average final weights between the experimental and the control birds.

636.5:637.525.004.4(043)
Ham - Quality.
Cookery - Poultry.

**129. Studies on the keeping quality of cooked chicken ham.** Lydia O. Dimla. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Nov. 1970. 16p. 2ℓ. tables. 8 refs. (Thesis. B.S. in Food Technology)

Better keeping quality of both wrapped and unwrapped cooked chicken ham stored at refrigeration temperature (38°F) was observed than those stored at room temperature (76°F). Ham samples stored at 38°F developed molds after 11 days in aluminum foil, 14 days in wax paper and 21 days in cellophane. Unwrapped ham, used as control, lasted 65 days without spoiling. Ham kept at room temperature (76°F) spoiled after 2 1/2 days in aluminum foil, 2 days in wax paper, and 3 days in cellophane. The control samples lasted 3 days. All samples stored at 38°F during the experiment were graded good, while those wrapped and unwrapped stored at 76°F were considered unacceptable and average, respectively.

636.5.082
Poultry breeding - Crossbreeding.
Roosters.

**130. Manoc Bolinao.** Catalino C. Catanaoan. *Better Poultry and Livestock*, Sept. 1970, v.12, no.1, p.10, 12-13. illus.

Manoc Bolinao is a homegrown, fast highflying fighting cock, from Bolinao (Pangasinan) and could compare favourably with any of the imported fowl. Its weight, color and characteristic as a good fighter have been improved by crossbreeding with imported Texas heavyweights (Nigger, Hulsey, Claret, McIntosh and Jacob), the resulting cross referred to as Boltex. The Boltex Nigger is preferred among the crosses. A simple procedure in raising a Boltex is given.

636.5.082
Semen - Roosters.
Roosters, Effect of testosterone on.

**131. Better fertility, thicker semen and more libido on roosters given neotestophos with vitamin E.** Marcelino D. Yanga and Wilfredo P. Sagun. *Araneta Journal of Agriculture*, April-June 1970, v.17, no.2, p.117-137. tables. 8 refs.

The effects of testosterone with vitamin E on 10-18 mo.-old S.C. White Leghorn, Cornish, New Hampshire and native roosters were studied. Results indicated that semen consistency turned thick to very thick on treatment. However, no change in the volume of semen was observed. Native roosters gave the highest number of sperm cells/c.c. (288,000,000). After treatment, the roosters became very active and aggressive and fought more often.

636.5.085 636.5:612.39
Poultry - Nutrition.

**132. Vitamin and mineral premixes for poultry.** Genaro O. Ranit. *Better Poultry and Livestock*, Aug. 1970, v.11, no.12, p.8-10, 12-13.

Recommendations for the effective and maximum utilization of vitamins and

minerals incorporated into the finished feed through premixes are discussed for the quantitative requirements of poultry.

636.5.085:612.398
Proteins in poultry nutrition.

**133. Factors influencing the protein requirements of the laying hen.** R.H. Harms and B.L. Damron. *Better Poultry and Livestock*, June 1970, v.11, no.10, p.24-27.

The factors, namely, 1) environmental temperature, 2) energy content of the feed, 3) breed or strain of the bird, 4) presence of certain diseases or stresses, and 5) age of the hen, are discussed.

636.5.089:615.77(043)
Poultry - Diseases and pests
Therapeutics.
Chicken body lice.

**134. The efficacy of "Shellgard" against certain lice in chickens.** Roger C. Chio. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 2ℓ. 14p. plates, table. 7 refs. (Thesis. Doctor of Veterinary Medicine)

A concentration of 0.75% Shellgard with Supona sprayed to individual chicken was found effective with 5 identified species of lice. No adverse effects were observed.

636.596.084/.085(043)
Feeding and feeding stuffs
Pelleted feeds.
Pigeons - Feeding.

**135. Study on the effect of prolonged feeding of A-one pellets to parent pigeons at the Araneta University Foundation.** Chookiet Ruangsuwan. Victoneta Park, Malabon, Rizal, Institute of Graduate Studies and Applied Research, Araneta University Foundation, April 1970. 1ℓ. 48p. plates, tables. 18 refs. (Thesis. M.S. in Agriculture, Major in Animal Husbandry)

Results showed that this system of feeding increased the fertility and hatchability of eggs laid. Squab production increased but was offset by the high cost of pellets. Whole corn and green seed seemed to be more economical feed to pigeons than pelleted feeds. Palay in combination with other grains may be a better and cheaper feed for pigeons to use in commercial pigeon flocks.

637.1:637.127.6
Milk - Bacteriology.
Dairy bacteriology.

**136. Bacterial pathogens in milk and milk products sold in the city of Manila.** Primo V. Arambulo, III, Rustica V. Sarmiento, Cresenciana R. Timbol, Aurora B. Cada and Angela Constantino (Div. of Research and Laboratory, Veterinary Inspection Board, Tondo, Manila). *Journal of the Philippine Medical Association*, May 1970, v.46, no.5, p.259-262. tables. 5 refs.

A 2-yr bacteriological study of raw and pasteurized carabao's and cow's milk, ice cream, ice drop and cottage cheese was conducted. Of the 755 samples of milk and milk products analyzed, 63.44% were positive for coliforms, 0.26% for *Staphylococcus aureus* and 1.32%, hemolytic streptococci. These results confirm previous observations that milk and milk products cause food poisoning, gastroenteritis and colitis in Manila.

637.141:637.13
Milk - Preservation.

**137. Hydrogen peroxide as a short term milk preservative.** *Agricultural and*

*Industrial Life*, Aug. 1969, v.31, no.7, p.27.

Researches conducted by the Dairy and Research Institute in College (Laguna) showed that the addition of 1 ml of 30% pure food grade $H_2O_2$ to 1 liter of raw milk preserved milk for 24 hrs The chemical did not affect the nutritional content of milk, although it imparted residual traces but which could be removed by catalase.

637.451
Eggs - Composition.

**138. The egg - nature's perfect food.** Aurora F. Simpliciano. *Better Poultry and Livestock*, Aug. 1970, v.11, no.12, p.14-17.

Egg is considered as an important protective food due to its essential nutrients content, along with other foods as milk, cheese, some red and glandular meats, fruits and vegetables. The high quality protein content of eggs contains all of the 10 amino acids considered necessary for growth and maintenance of body tissues. It is virtually a multi-vitamin, multi-mineral pill.

637.451:591.3(043)
Eggs - Hatchability.

**139. Position of Single Comb White Leghorn eggs in relation to hatchability.** Salvador O Mabalot. Victoneta Park, Malabon, Rizal, Araneta University Foundation, Oct. 1970. 2ℓ. 16p tables, illus. 7 refs. (Thesis. B.S in Animal Husbandry)

A total of 100 eggs were divided into lots and incubated 1) with blunt end up, 2) lying on the sides with the longitudinal axis parallel to the width of the tray, 3) with the pointed end up, 4) with the pointed end up but inclined to the left, and 5) with the pointed end up but inclined to the right. Lot No. 4 gave the highest hatchability rate of 62.5%, followed by lot No. 2, 53.8%, Lot No. 3, 50%, and lots 1 and 5, 43.7%.

## CHEMICAL AND ALLIED INDUSTRIES

66.014:547.913(043)
Ocimum basilicum.
Essential oils.

**140. A chemical investigation of the volatile oil of Ocimum basilicum Linn. (Fam. Labiatae).** Suda Chantharasakul. Diliman, Quezon City, Graduate School, University of the Philippines, April 1970. 40p. charts, plates, tables. 43 refs. (Thesis. M.S. in Pharmacy)

Steam distillation yielded a clear, colorless to slightly yellow, strongly anise-smelling, somewhat cooling saline oil. Its physico-chemical properties are: sp. gr. $25^{o}C$ 0.9752; $N_D^{25}$ = 1.5121; $3l_D$ = 3.757; congealing point = $-26^{o}F$; acid value = 2.019; ester value 8.471; saponification value = 18 969; ester value after acetylation = 62.084. Thin layer chromatography and infrared spectrophotometry revealed that the main component is methyl-chavicol.

661.73:539.16.002
Oleic acid. Olein.

**141. A neat and simple method of preparing radioiodinated oleic and triolein for metabolic studies.** Aida T. Lavila and Linda G. Lumba (Philippine Atomic Research Center, Diliman, Quezon City). *Philippines Nuclear Journal*, 1970, v.2, no.2, p.193-196. graphs, tables, illus. 2 refs.

A method of producing $^{131}I$-labelled oleic acid and triolein is described Chromatographic analyses indicated that the product obtained is stable within 22

days storage at ordinary conditions and are pure enough for studies on the absorption and metabolism of fats.

662.63:591.69-438
Wood ashes. Oncomelania quadrasi.

**142. The use of wood ash for the control of Oncomelania quadrasi, the snail intermediate host of Schistosoma japonicum.** Angelina G. Apostol. *Leyte-Samar Studies*, 1970, v.4, no.2, p.46-52. graphs, table. 8 refs.

Results of the experiments showed that highly concentrated solutions of coconut shell and mangrove ashes inhibited the hatching of *O. quadrasi* eggs and proved lethal to young snails. Solutions of bamboo and coconut frond ashes were not as effective.

664.641
Coconut flour.

**143. Effect of the maturity of coconut on the composition and texture of coconut flour.** Araceli L. Dolendo, Pacita B. Briones, Estrella A. Banzon and Magdalena C. Librea (FRL, National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Dec. 1967(1970), v.96, no.4, p.353-361. tables. 11 refs.

Proximate analysis was conducted on coconut meat samples and coconut flour produced from coconut varying from the 8th to 12th mo. stage of maturity. Texture of the meat for each age group changed from soft-watery for young nuts to dry-crunchy for mature nuts. The 10th mo. age groups showed an abrupt increase in oil content and flour yield, and produced the maximum protein content. The amount of flour increased from 14 to 25.8% from the 8th to 12th mo. age group. The fiber content of the different age groups with the same particle size did not vary much. Textile profile analysis showed the powdery and low adhesiveness of flour samples. The 8th and 9th mo. samples were gummy on chewing, the 10th mo. slightly gummy, and the 11th to 12th mo. not gummy at all.

664.873.85
Nata. Coconut - By-products.

**144. Preparation and storage qualities of fortified nata de coco.** Araceli L. Dolendo and Pacita L. Maniquis (National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Dec. 1967(1970), v.96, no.4, p.363-376. graphs, tables. 17 refs.

Several steps in the traditional method of processing were modified. The nata was fortified with vitamins and minerals, with drops of *kalamansi (Citrus microcarpa* Bunge) oil added for flavoring. The product was bottled in clear glass jars wrapped with dark green cellophane and stored for 11 mo.

After processing, the nutrients had the following retention: niacin, 94%; ascorbic acid, 96%; thiamine, 89%; riboflavin, 87%; Ca, 89%; and P, 75%. Sugar concentration was constant and pH value remained at 3.5 after the 7th mo. in both storage conditions, with a slight increase in the last mo. in samples stored at room temperature. Up to the 9th mo., nata stored at room temperature was rated more preferable.

665.353.6:543.8
Coconut oil - Analysis.

**145. A comparative study of the stability of edible coconut oil prepared by different methods.** Guillermina C. Mañalac and Anita Harder-Soliven (IRC, National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Dec. 1967(1970), v.96, no.4,

p.387-392. tables, diagr. 3 refs.

Processed commercial copra samples gave higher AOM (active oxygen method) stability values than those from fresh meat. All laboratory samples and those from commercial dessicated and granulated coconut registered high values. Market samples were very unstable; their free fatty acid content did not change appreciably as the oils developed high peroxide values. Stabilities of samples which underwent alkali-refining, bleaching, and deodorizing processes were lower than those of oils not so treated. Possibly, these processes removed natural antioxidants in the oil.

665.353.6:66.061
Coconut oil - Extraction.

**146. Filtration-extraction of granulated coconut on a bench scale.** Asuncion R. Aliwalas and Celso P. Buccat (IRC, National Institute of Science & Technology, Manila). *Philippine Journal of Science*, Sept. 1967(1969), v.96, no.3, p.215-228. tables, illus. 5 refs.

A meal product with residual oil content of less than 1% was obtained under the following satisfactory processing conditions on extraction: 1) hexane-meats ratio of 2:1; 2) slurrying time of 45-60 min; 3) 4 washes; 4) filtering by gravity drainage; 5) cake thickness of 2 1/2 to 3 in.; and 6) temperature of slurrying and washing at 120°F. Moreover, flaking at 80-85 kg roller pressure greatly improved the extraction efficiency. The filter medium found adequate is a screen of 200-mesh size, giving mass velocities satisfactorily high for commercial use.

## WOODWORK AND TIMBER INDUSTRY

674.03:581.4
Wood - Anatomy.

**147. Occurrence of normal and traumatic gum canals in porous woods.** College, Laguna, Forest Products Research & Industries Development Commission, Oct. 1970. 3p. illus. 9 refs. (Technical note no. 98)

Normal gum canals are found in all species of Dipterocarpaceae and in some species of Leguminosae, Anachardiaceae, Burseraceae, Apocynaceae and Crypteroniaceae. Traumatic gum canals occur in species of Bombazcaceae, Boraginaceae, Meliaceae, Myrtaceae, Rutaceae, Sterculiaceae and amygdalaceae.

674.03:620.174
Wood - Testing. Red lauan.

**148. The effect of longitudinal compression on the bending properties of red lauan (Shorea negrosensis Foxw.).** Exequiel U. Mendoza (Forest Products Research & Industries Development Commission, College, Laguna). *Philippine Lumberman*, Sept. 1970, v.16, no.9, p. 34, 36-37. graph, tables, illus. 7 refs.

Experiments indicated that longitudinal compression improved the bending properties of red lauan. Steaming and compression from 1 to 10% of the length showed that 5% was the maximum safe compression without crushing. Setting the lumber under restraint rendered the lumber more flexible than those set freely after longitudinal compression. The alternate compression and release process may be used to produce curve-wood products like cover strips, lippings, moldings and tool handles.

674.03·620.178
Wood · Durability.

**149. Natural durability of some Philippine woods by stake tests.** F.R. Siriban. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna), Jan.-Feb. 1970, v.5, no.1, p.1-7. table. 4 refs.

Durability test was conducted on 1508 specimens representing 103 species. Variations in durability in specimens of the same species and in specimens within a tree from the same locality were noted. It was found that the wood in contact with the ground has service life directly proportional to its thickness and not to its cross-sectional area. Most failures were by a combined fungal and termite attack. The sapwood tree species were rated as perishable.

674 03:632.4
Wood destroying fungi.
Lignin.

**150. Lignin degradation in wood by white-rot and brown-rot fungi.** Mario A. Eusebio. *Wood Preservation Report* (Forest Products Research & Industries Development Commission, College, Laguna). Jan.-Feb. 1970, v.5, no.1, p.8-11. tables. 6 refs.

The ability of white-rot and brown-rot fungi to degrade lignin and other wood constituents was studied in apitong *(Dipterocarpus grandiflorus* Blanco) and yakal *(Shorea astylosa* Foxw.). Results showed an average reduction of lignin (29%) in both species. The reduction in lignin content due to white-rot fungi was notably higher than that caused by brown-rot fungi especially in yakal.

## PULP AND PAPER INDUSTRY

676.16(043)
Wood pulp. Paper making materials.

**151. Comparative evaluation of pulp and papermaking aptitudes of five Philippine hardwoods.** Morakot Pirmphol. Victoneta Park, Malabon, Rizal, Araneta University Foundation, 1970. 4*l*. 16p. tables. 6 refs. (Special problem. B. S. in Forestry)

Good quality papers were produced from the following species: African tulip (*Spathodea campanulata* Beauv.), gubas *(Endospermum peltatum* Merr.) kaatoan bankal [*Antocephalus chinensis* (Lamk) Rich. ex Walp.] kapok [*Ceiba pentandra* (L.) Gaertn.] and Moluccan sau [*Albizzia falcata* (L.) Back.] by the sulfate process. Kaatoan bangkal was the most outstanding among the species particularly for manufacture of bag papers. It is a fast grower, capable of producing 15-cm diameter pulpwood in about 5 yrs.

## LIST OF PUBLICATIONS

NOTE: This list contains the publications from which pertinent articles are abstracted in this issue.

A. PERIODICALS

Acta Medica Philippina

Agricultural and Industrial Life

Araneta Journal of Agriculture

Better Poultry and Livestock

Bureau of Forestry
- Occasional Paper
- Research Note

CLSU Scientific Journal

Chemists' Quarterly

Forest Products Research & Industries Development Commission
- Technical Note

IRRI Reporter

Journal of the Geological Society of the Philippines

Journal of the Philippine Medical Association

Journal of the Philippine Pharmaceutical Association

Leyte-Samar Studies

MIT Research Journal

Monthly Bulletin (College of Agriculture, University of the Philippines, College, Laguna)

Philippine Agriculturist

Philippine Biota

Philippine Journal of Pediatrics

Philippine Journal of Science

Philippine Journal of Surgical Specialties

Philippine Lumberman

Philippine Mining Record

Philippines Nuclear Journal

Philippine Sugar Institute Quarterly

Proceedings of the Philippine Society of Endocrinology and Metabolism

U.P. Veterinarian

Weather Bureau
- Technical Series

Wood Preservation Report (Forest Products Research & Industries Development Commission, College, Laguna)

B. OTHER PUBLICATIONS (UNPUBLISHED)

Scientific Papers
- [PAEC (D)]
- IRRI Catalog

Special Problem
- Araneta University Foundation

Theses
- Araneta University Foundation
  - Institute of Agriculture
  - Institute of Graduate Studies and Applied Research
- University of the Philippines
  - College of Pharmacy
  - College of Veterinary Medicine
  - Graduate School
- University of San Carlos
  - Faculty of Graduate School
- University of Santo Tomas
  - Faculty of Graduate School